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Bay Area's Computer Magazine

OCT. 30, 1989 • #62

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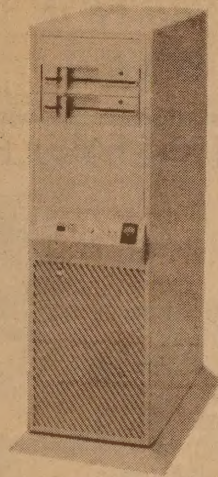
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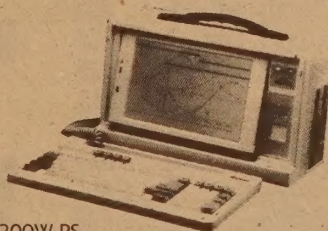
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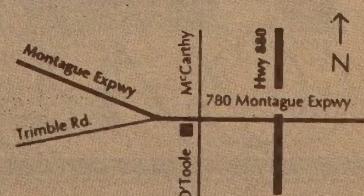
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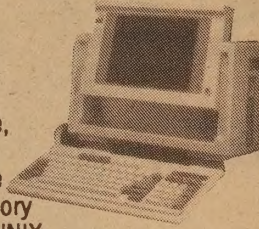
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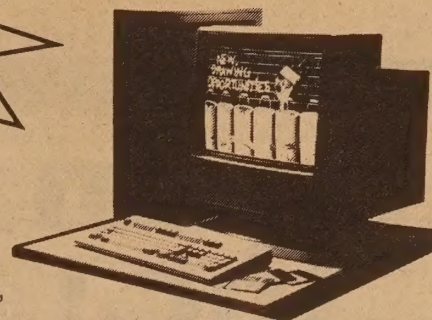
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SPECIAL REPORT

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Not What You Think?

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 Japanese entrepreneur brings *MicroTimes* to a new audience.

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By Mary Eisenhart
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MAC @ WORK

158 The Macintosh Portable: First Impressions

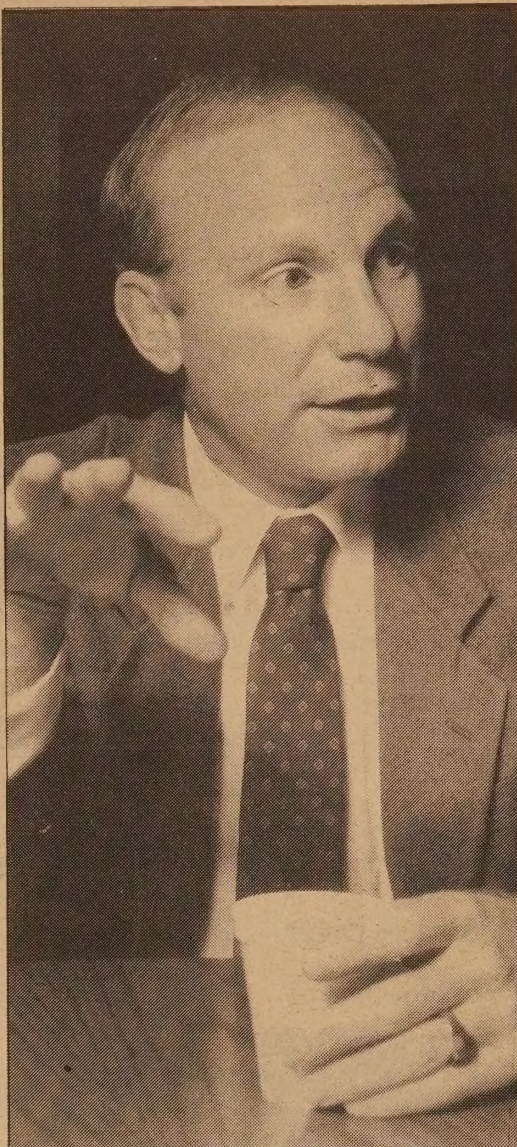
By Mike Markowitz
 Long-awaited, heavy, and expensive, the Mac Portable is nonetheless an elegant and uncompromising solution.

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Michael Gluck of Fujitsu's Computer Products Group

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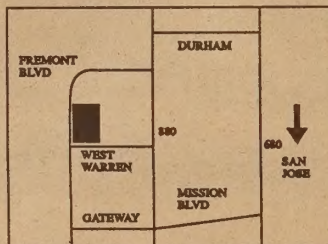
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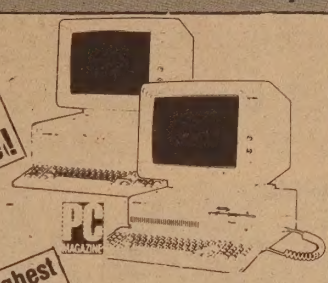
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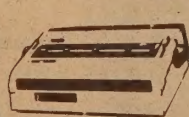
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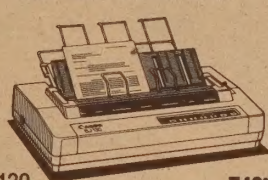
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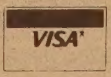
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October 30–November 1 Network Systems Forum '89: A New Frontier. San Jose. 3Com. Call: (408)562-6486.

October 30–November 2 Introduction To Systems Analysis, Design, And Development Meeting. San Francisco. American Management Association. Call: Vern Lautner, (212)903-8208.

October 30 Excel: Business Power For The Mac Class. Fort Mason Center, San Francisco. Computer Alliance. Call: (415)771-1671.

October 30–31 Software Configuration Management Short Course. Berkeley. UC Berkeley Extension. Call: (415)642-4151.

October 31 HyperCard Seminar For Beginners. Berkeley. BMUG. Call: Betsy Kennedy, (415)549-2684.

October 31 Intermediate Macintosh Class. Fort Mason Center, San Francisco. Computer Alliance. Call: (415)771-1671.

October 31 PageMaker Part II Class. Fort Mason Center, San Francisco. Computer Alliance. Call: (415)771-1671.

October 31–November 3 Influence Skills Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

October 31 Automating Your Accounting System With Solomon—See What It Can Do For Your Business! San Francisco. J.C. Lukrich & Co. Call: Beth Markus, (415)864-6770.

November 1 Annual CPA's Accounting Software Forum. Burlingame. J.C. Lukrich & Co. Call: Beth Markus, (415)864-6770.

November 1 ProTel Meeting: Voice Processing. Foster City. Professionals in Telecommunications. Call: (415)598-2723.

November 1 Intermediate WordPerfect 5.0 Class. San Francisco. San Francisco State University. Call: (415)338-1205.

November 1–3 Software Quality Assurance Short Course. Berkeley. UC Berkeley Extension. Call: (415)642-4151.

November 2 SEF Meeting: Multimedia & HyperCard SIG. Los Altos. Software Entrepreneurs' Forum. Call: David Gewirtz, (415)345-4620.

November 2 The New USF Telecommunications System: Its Impacts On Students, Faculty, And Staff Lecture. San Francisco. USF Dept. Of Computer Science. Call: (415)666-6530.

November 3 PC Clubhouse Meeting: Hyperdoc Demo/Making Money With Desktop Publishing.

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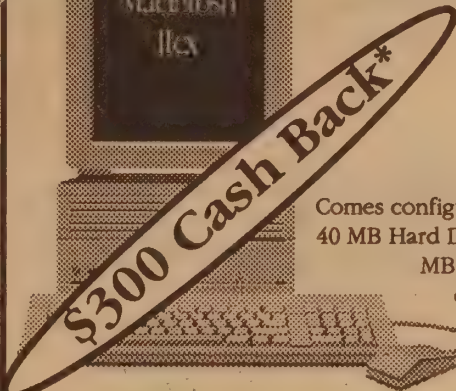
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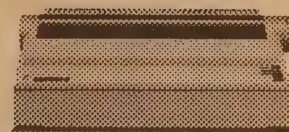
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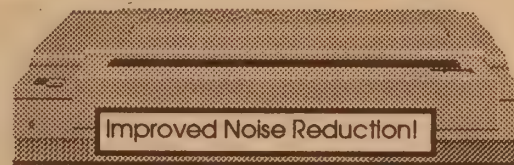


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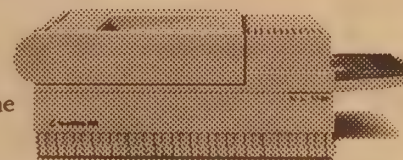
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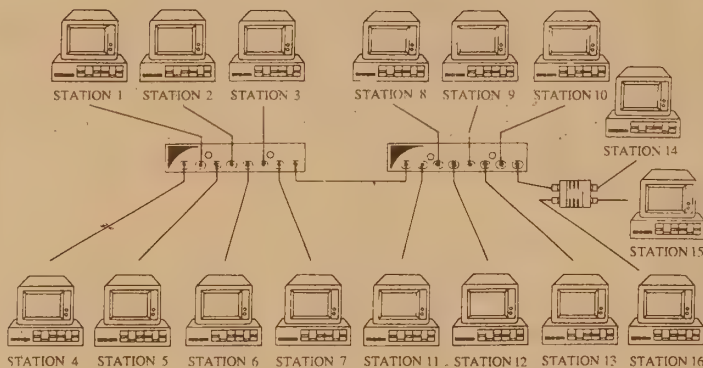
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Hayward. PC Clubhouse. Call: Asha Goldberg, (415)547-6355 or 769-5421.

November 3 Using Lotus 1-2-3 Class. San Francisco. San Francisco State University. Call: (415)338-1205

November 4 Installing Novell NetWare Local Area Networks Class. Oakland. DataNet. Call: (415)465-9084.

November 4 LAN Basics: Network Installation & Configuration Class. Oakland. DATAassociates. Call: (415)465-9083.

November 4 Computer Show & Sale. Santa Clara. East-West Computer Shows. Call: (415)388-8893.

November 4 Basic Tax And Record Keeping Information For Self-Employed People Seminar. San Jose. Jan Zobel, E.A. Call: (408)924-2600.

November 6 AISIG Meeting: The Emergence Of An Effective Data Processing Technology Speech. Santa Clara. Artificial Intelligence Special Interest Group. Call: Rita Zokaei, (415)574-8225.

November 8 DOS Basics: Using The PC Operating System. Oakland. DataNet. Call: (415)465-9084.

November 8 HTEC Meeting: Jim Levy On High-Tech Start-Ups. Oakland. High/Technology Entrepreneurial Council. Call: Rachel Muñoz, (415)339-3895.

November 8 15th Annual Northern California Microelectronics Symposium And Vendor Fair. San Jose. International Society For Hybrid Microelectronics. Call: (408)354-2400.

November 8 STC Meeting: Editors And Authors—Can This Marriage Work? Berkeley. Society For Technical Communications. Call: Marla Wilson, (415)549-3801.

November 9 SEF Meeting: IBM Technical SIG. Palo Alto. Software Entrepreneurs' Forum. Call: Mike Schmit, (408)244-6826.

November 9-10 Time Line 3.0 Workshop. San Francisco. Symantec. Call: (415)898-1919.

November 9 Is There Life In The Computer Society Lecture. San Francisco. USF Dept. Of Computer Science. Call: (415)666-6530.

November 10 PC Repair Class. Oakland. DataNet. Call: (415)465-9084.

November 11 How To Manage The Novell NetWare Operating System Class. Oakland. DataNet. Call: (415)465-9084.

November 11 Administration: Managing A Novell Network Class. Oakland. DATAassociates. Call: (415)465-9083.

November 11 De Anza College Computer Mart. Cupertino. De Anza College. Call: (408)864-8581.

November 13-17. Supercomputing '89. Reno, NV.

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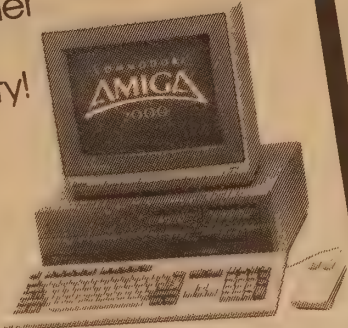


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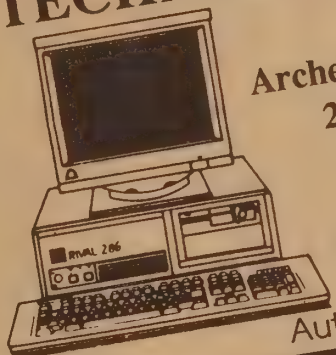
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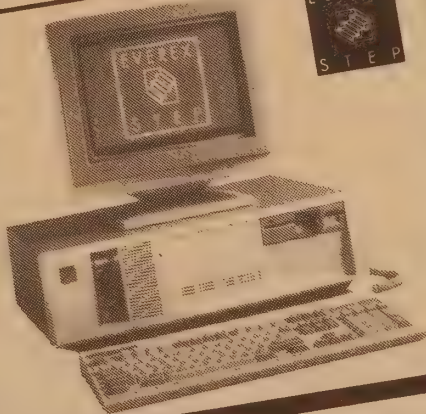
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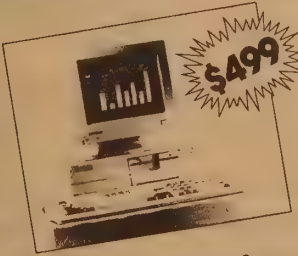


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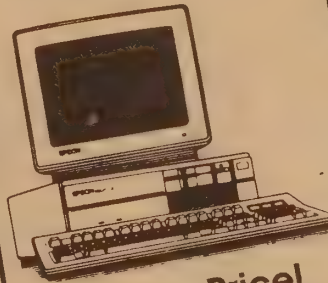
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- **Power Mate 386SX portable**
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- **Power Mate 386/20**
20 MHz, 2 MB RAM, 1.2 MB Floppy**\$2249**

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- **RIVAL 286-12**
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| KODAK DICONIX 150 PORTABLE 369 | |

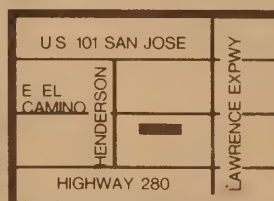
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CALENDAR OF EVENTS continued

ACM SIGARCH/Computer Society of the IEEE. Call: (415)694-4370.

November 13-17 COMDEX Fall '89. Las Vegas, NV. Interface Group. Call: (617)449-6600.

November 13 Javelin Introductory Hands-on Seminar. San Francisco. Mentor Technologies. Call: 1-800-227-5502.

November 13-14 Time Line 3.0 Workshop. San Francisco. Symantec. Call: (415)898-1919.

November 13-14 UNIX System Administration Short Course. San Francisco. UC Berkeley Extension. Call: (415)642-4151.

November 13-17 UNIX For System Programmers Short Course. San Francisco. University of California, Berkeley. Call: (415)642-4111.

November 14-17 Digital Signal Processing: Techniques & Applications Course. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

November 14 Javelin Advanced Hands-on Seminar. San Francisco. Mentor Technologies. Call: 1-800-227-5502.

November 14 SEF Meeting: Macintosh SIG. Cupertino. Software Entrepreneurs' Forum. Call: Tony Meadow, (415)644-9400.

November 15 Consulting In The '90s Seminar. San Francisco. The Professional Consultant. Call: Pat Jordan, (818)703-1415.

November 15-16 UNIX Kernel Structure And Flow Short Course. San Francisco. UC Berkeley Extension. Call: (415)642-4151.

November 16 WordPerfect 5.0 Class. Oakland. DataNet. Call: (415)465-9084.

November 16 SEF Meeting: 32-bit Microprocessors—Where We Are Now And Where The Technology Is Heading. Palo Alto. Software Entrepreneurs' Forum. Call: Barbara Cass, (415)854-7219.

November 16 Trojan Horses: Bombs, Worms, Cookie Monsters, And Viruses Lecture. San Francisco. University of San Francisco. Call: (415)666-6530.

November 16-17 USENIX Computer Graphics Workshop. Monterey. USENIX Association. Call: (313)936-2616.

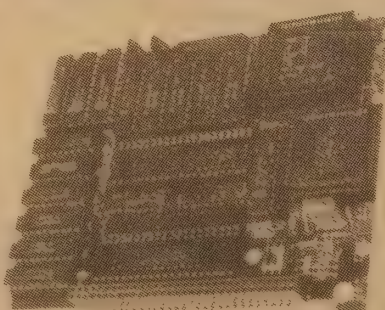
November 17 Installing Novell NetWare Local Area Networks Class. Oakland. DataNet. Call: (415)465-9084.

November 17 LAN Basics: Network Installation & Configuration Class. Oakland. DATAAssociates. Call: (415)465-9083.

November 17 UNIX Device Driver Basics Short Course. San Francisco. UC Berkeley Extension. Call: (415)642-4151.

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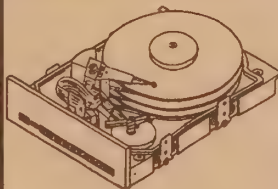
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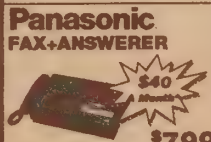


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Packard Bell 14" EGA \$329
Packard Bell hi-res VGA \$399
Panasonic Panasync VGA \$499
NEC 3D \$649

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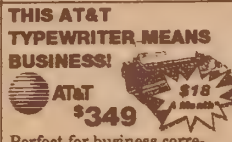
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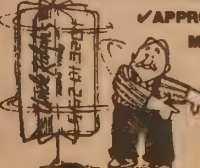
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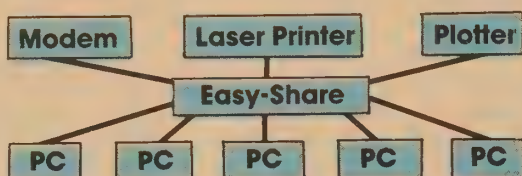
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CALENDAR OF EVENTS *continued*

November 18 Maintaining & Troubleshooting A Novell Network Class. Oakland. DataNet. Call: (415)465-9084.

November 21 Apple II/Macintosh Swap Meet. Sacramento. Apple Sac. Call: (916)725-0228.

November 21 Automating Your Accounting System With Solomon—See What It Can Do For Your Business! San Francisco. J.C. Lukrich & Co. Call: (415)864-6770.

November 21 SEF Meeting: OOP SIG. Mountain View. Software Entrepreneurs' Forum. Call: Dean Ritz, (415)691-6727.

November 21 Art As Invention. San Francisco. Ylem: Artists Using Science And Technology. Call: Trudy Reagan, (415)856-9593.

November 22 DOS Basics: Using The PC Operating System Class. Oakland. DataNet. Call: (415)465-9084.

November 24 How To Manage The Novell NetWare Operating System Class. Oakland. DataNet. Call: (415)465-9084.

November 25 PC Repair Class. Oakland. DataNet. Call: (415)465-9084.

November 28-30 InfoSec '89. Palm Springs. Advanced Computing Environments. Call: (415)941-3399.

November 28-December 1 Expert Systems Design & Development: Hands-on Workshop. Los Angeles. Integrated Computer Systems. Call: 1-800-421-8166.

November 28-December 1 Real-time Structured Analysis & Design Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

November 28-1 Security For Computer And Communication Systems. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

November 28-December 1 Structured Analysis & Design Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

November 28 Automating Your Accounting System With Solomon—See What It Can Do For Your Business! San Francisco. J.C. Lukrich & Co. Call: Beth Markus, (415)864-6770.

November 29-December 1 Macintosh Business Conference & Exposition. Long Beach. Cambridge Marketing. Call: Nancy Thayer, (617)860-7127.

November 29 DOS Basics: Using The PC Operating System Class. Oakland. DataNet. Call: (415)465-9084.

November 30 Lotus 1-2-3 Class. Oakland. DataNet. Call: (415)465-9084.

November 30 SEF Meeting: Marketing SIG. Palo

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Pro Printer X24/XL 24E/XL.....535/699/499
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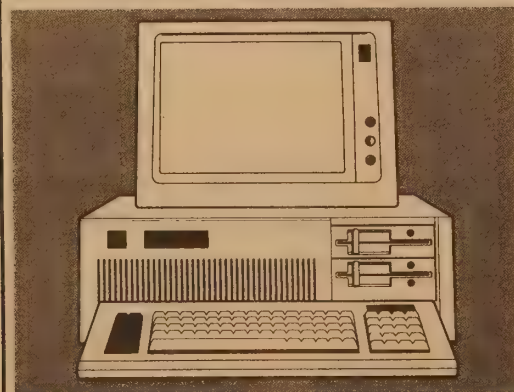
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CALENDAR OF EVENTS *continued*

Alto. Software Entrepreneurs' Forum. Call: Don Morrison, (415)425-7222.

November 30 The Coming Of Worldnet Lecture. San Francisco. University of San Francisco. Call: (415)666-6530.

December 2-3 MacMusicFest 3.0. Los Angeles. Apple Computer/Macintosh Entertainment Guild Of America. Call: (213)468-5496.

December 2 Installing Novell NetWare Local Area Networks Class. Oakland. DataNet. Call: (415)465-9084.

December 2 LAN Basics: Network Installation & Configuration Class. Oakland. DATAassociates. Call: (415)465-9083.

December 4-5 Dataflex Class. San Jose. Goldcoast Software Systems. Call: (415)964-1500.

December 5 DataFlex Programmer's Class. San Jose. Goldcoast Software Systems, Inc. Call: (415)964-1500.

December 5-8 Systems Engineering Course. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

December 5 How To Automate Your Business Accounting System Seminar. San Francisco. J.C. Lukrich & Co. Call: Beth Markus, (415)864-6770.

December 5-8 Sun User Group 1989 Conference. Anaheim. Sun Microsystems. Call: (415)336-4112.

December 6 DOS Basics: Using The PC Operating System. Oakland. DataNet. Call: (415)465-9084.

December 6 Lotus 1-2-3 Macros Workshop. San Francisco. UC Berkeley Extension. Call: (415)642-4231.

December 7-8 Time Line 3.0 Workshop. San Francisco. Symantec. Call: (415)898-1919.

December 7 Microcomputer Applications For People With Physical Disabilities Lecture. San Francisco. University of San Francisco. Call: (415)666-6530.

December 8 PC Repair Class. Oakland. DataNet. Call: (415)465-9084.

December 9 Administration: Managing A Novell Network Class. Oakland. DATAassociates. Call: (415)465-9083.

December 9 Computer Mart. De Anza College. De Anza College. Call: (408)864-8581.

December 9 Basic Tax And Record Keeping Information For Self-Employed People Seminar. San Jose. Jan Zobel, E.A. Call: (408)924-2600.

December 11-12 Xerox Ventura Publisher Seminar And Exposition. San Jose. Ventura Professional magazine/VPUG, Inc. Call: (408)227-5030.

December 11-12 Time Line 3.0 Workshop. San Francisco. Symantec. Call: (415)898-1919.

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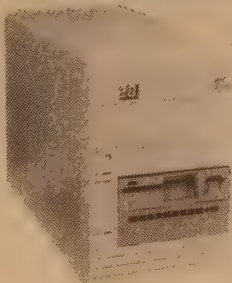
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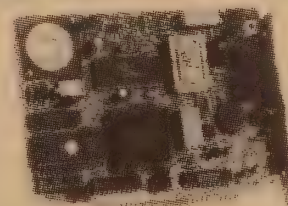
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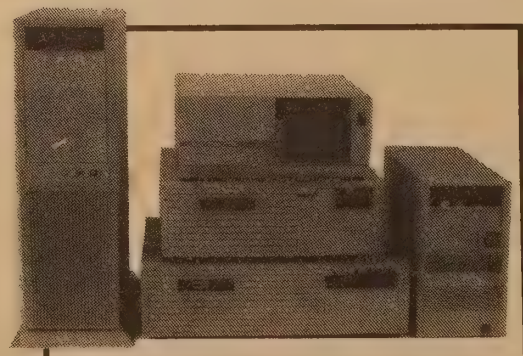
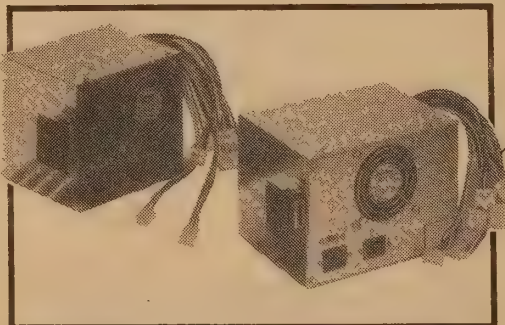
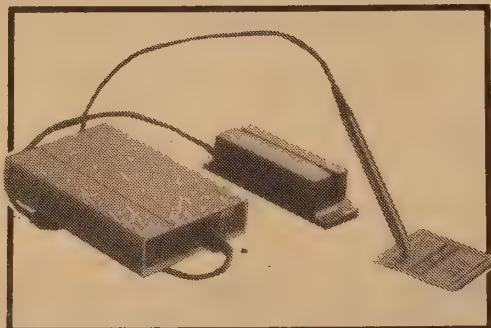
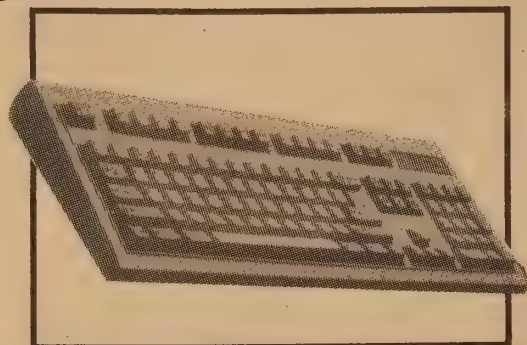
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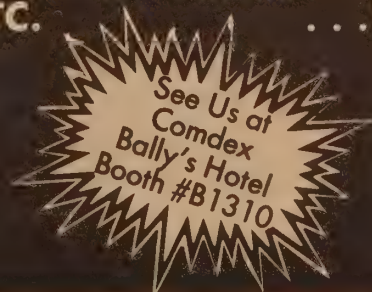
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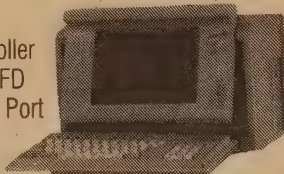
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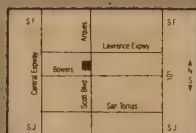
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December 12 How To Manage The Novell NetWare Operating System Class. Oakland. DataNet. Call: (415)465-9084.

December 15 Installing Novell NetWare Local Area Networks Class. Oakland. DataNet. Call: (415)465-9084.

December 15 Administration: Managing A Novell Network Class. Oakland. DATAssociates. Call: (415)465-9083.

December 18-19 Time Line 3.0 Workshop. San Francisco. Symantec. Call: (415)898-1919.

December 20 DOS Basics: Using The PC Operating System. Oakland. DataNet. Call: (415)465-9084.

January 6 Installing Novell NetWare Local Area Networks Class. Oakland. DataNet. Call: (415)465-9084.

January 11-12 Time Line 3.0 Workshop. San Francisco. Symantec. Call: (415)898-1919.

January 12 PC Repair Class. Oakland. DataNet. Call: (415)465-9084.

January 13 How To Manage The Novell NetWare Operating System Class. Oakland. DataNet. Call: (415)465-9084.

January 18 WordPerfect 5.0 Class. Oakland. DataNet. Call: (415)465-9084.

January 18-19 Time Line 3.0 Workshop. San Francisco. Symantec. Call: (415)898-1919.

January 19 Installing Novell NetWare Local Area Networks Class. Oakland. DataNet. Call: (415)465-9084.

January 22-23 Time Line 3.0 Workshop. San Francisco. Symantec. Call: (415)898-1919.

January 24 DOS Basics: Using The PC Operating System. Oakland. DataNet. Call: (415)465-9084.

January 24-26 Strategic Planning Course. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

January 25 Lotus 1-2-3 Class. Oakland. DataNet. Call: (415)465-9084.

January 26 How To Manage The Novell NetWare Operating System Class. Oakland. DataNet. Call: (415)465-9084.

January 27 PC Repair Class. Oakland. DataNet. Call: (415)465-9084.

As a community service, MicroTimes lists trade shows, seminars, and other special events in the Calendar of Events free of charge on a space-available basis. To improve the likelihood of your listing's timely inclusion, please make sure we have the necessary information no later than the first of the month, two months before the coverdate of the issue in which you'd like it to appear (i.e., the deadline for the March issue, distributed during February, is January 1). Send to: MicroTimes Calendar of Events, 5951 Canning St., Oakland, CA 94609.

News about user group meetings and other regularly scheduled activities should be sent to User Group Network at the same address.

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Power Supplies

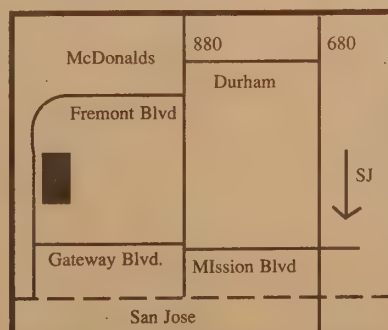
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THE QUAKE

The Industry And The Quake

By Mary Eisenhart

As communications were restored in the wake of the biggest earthquake in most people's memory, one of the most frustrating problems was the sporadic and often contradictory nature of reports coming out of the affected areas. Many companies were able to return to business as usual fairly quickly; some had no interruption of normal functions, while others sustained considerable damage and were scrambling to restore their operations. Among the reports:

- Apple's main headquarters in Cupertino was variously reported as a total loss and remarkably unscathed. As we went to press, the fate of DeAnza III, the building that housed most of the company's development program, was in doubt; in addition to structural damage, the quake apparently caused the building's sprinkler system to run amok and flood several floors, and one report indicated that the nearly-new building was condemned. Programmers reported being assigned to new locations for the duration. The Macintosh factory in Fremont is said to be undamaged.
- The highly robotized state-of-the-art NeXT manufacturing plant, and NeXT in general, are doing just fine.
- After closing down for inspections, Hewlett-Packard found no data loss and mostly cosmetic damage to its buildings; with the exception of two buildings in Palo Alto, all facilities were open as of October 20.
- On Page Mill Road in Palo Alto, the offices of Xerox PARC were closed to the public at presstime.
- Near the epicenter in Scotts Valley, Borland International expected to resume production October 23, and also to have customer support services restored at that time.
- A Silicon Graphics employee reported an interesting earthquake experience: built on landfill, the buildings rest on rollers, which made for a dramatic ride but kept the structures intact.
- Nearby, Sun Microsystems reported business as usual.
- Except in San Francisco, most retailers seemed to have sustained little damage and to be operating as usual. Both Fry's locations reported uninterrupted service; ComputerWare reported no stock damage at either location, and was open as usual, though its mainframe had gone down during the quake. Advance Computer Systems was doing business at its Walnut Creek and Sunnyvale stores, while the San Francisco store was described as "a complete shambles."

As Reported In The WELL's Online Global Village

It was like something in one of those Niven/Pournelle disaster novels—the Big One (or its close relative) hits the Bay Area. At rush hour. During the first-ever Oakland/San Francisco World Series.

The earthquake that shook the Bay Area October 17 will be felt throughout the computer industry for months to come, as reports continue to come in of damaged buildings and equipment—and miraculously low loss of life. Next month's *MicroTimes* will feature in-depth coverage of the quake, its impact on the Valley, and the state of recovery from the disaster.

For a highly personal and relatively instantaneous perspective on the quake, it's hard to find a better example than the discussion on The WELL in Sausalito. Thanks to the relatively low impact of the tremor in Marin County, to say nothing of the diligent efforts of WELL staff including system administrator (and *MicroTimes* contributing editor) David Hawkins, the WELL was up and running a few hours after the quake.

The resulting exchange, of which brief excerpts are reproduced here with permission of their authors, unfolded amazing tales of heroism, coop-

eration, and miraculous escapes. As Bay Area residents battled with erratic phone lines to reassure distant loved ones, WELLbeings logged on from all over the country to inquire after their friends, setting up convoluted phone networks to get the word out. At frequent intervals, Hawkins would post lists of users who had logged in since the quake, allaying anxiety of their concerned friends.

If ever there were an illustration of the online global village at work, this was it. As we go to press, the WELL community seems to be emerging remarkably unscathed, and it's generally agreed that the post-quake information-, resource-, and good-wishes sharing of the Earthquake topic represents the WELL's finest hour. (If you'd like to join the WELL, call 415/332-4435 voice or 415/332-6106 modem; log in as "newuser" and follow the prompts to register.)

—Mary Eisenhart

**Topic 398 - Earthquake!! Oct. 17th at 5:04pm
by David Hawkins (dhawk) Tue, Oct 17, 1989
(23:45)**

There was a 7.0 earthquake today. Over 200 have died. Large fire in SF's Marina district.

continued on page 136

Font Wars Break Out, Causing Surprising Alliances

Apple and Microsoft agreed last month to share font and printer technology in an effort to break Adobe's stranglehold on the scalable font market. The agreement allows Microsoft to use Apple's new scalable font technology in its operating systems in exchange for Apple getting to use Microsoft's PostScript-compatible printer driver.

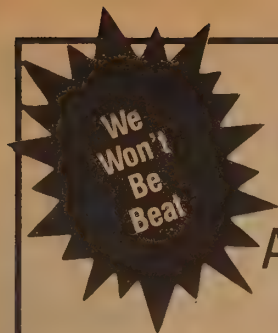
Although many companies have come up with scalable font technologies to compete with Adobe, no one has been able to convince many users to go with a particular system. When Apple announced in May that it was breaking with Adobe in the next major release of its system software, many people were skeptical that it could make a big inroad without support for the fonts on PCs. Microsoft's announcement that they would use Apple's standard in OS/2 gave Apple a huge boost in the acceptance of its font technology.

The announcement is not a death knell for Adobe, but it certainly is a slap in the face. Adobe has made

sizable profits over the past few years by charging high amounts for PostScript drivers for printer manufacturers and by preventing font companies from creating high-quality PostScript fonts that compete with Adobe's retail font packages.

Although anyone can easily design a PostScript font, the font often does not look well-proportioned at sizes smaller than 10 points on a standard 300 DPI printer. Adobe's look good even in very small sizes, due to "hints" that it builds into its fonts. Adobe steadfastly refused to tell its competitors how to create those hints. This, in turn, made large manufacturers like Apple nervous, since there was a distinct lack of competition in the font field.

When Apple announced that it was moving away from PostScript and into its own font technology, it made clear that the new technology would contain "hints" in a very open fashion. Any font company could make their fonts look as good as any other. When Microsoft announced support for Apple's font technology for OS/2, it indicated that it wanted a common font format across computer systems. It is not excluding other font systems from OS/2; in fact,



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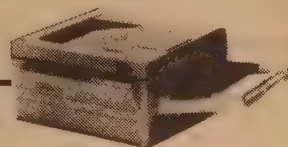


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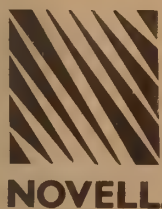
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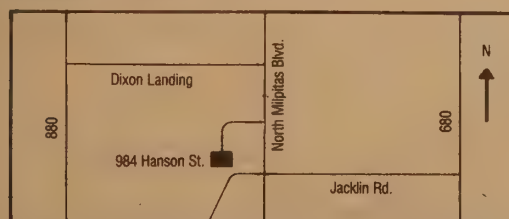
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NEWS

AND ANALYSIS

any manufacturer can program a font system replacement if they want. However, it is very unlikely that any of these will catch on. IBM's Nick Donofrio, Vice President for the Advanced Workstation Division, said that IBM will use the Apple fonts in OS/2.

After the announcement, company leaders got pretty testy. At a speech before the Seybold Computer Publishing Exposition, Adobe president John Warnock called the agreement "garbage." He clearly saw his lock on the market loosened and was visibly shaken during the speech. He further promised to release the specification for hints in PostScript fonts within six months. That announcement (not the Apple/Microsoft agreement) caused Adobe's stock to plunge as investment advisors worried that, without the proprietary technology, Adobe's stock would not hold up in the long run. Steve Jobs, president of NeXT and its most vocal industry supporter, made fun of the alliance but offered no reasonable solution for the two companies.

As Microsoft president Bill Gates pointed out after Warnock's response, "The world went from zero open formats to two." Given that none of the current PostScript printers will be converted to ones that handle the new font format, there is no doubt that PostScript or Adobe will be around for a long time. Also missed by many people was the fact that what Apple got out of the deal is a PostScript driver that uses the Apple font format. This means that Apple will be able to continue to make PostScript-compatible printers at the same time as they make printers that support QuickDraw, and have both printers use the same fonts.

Clearly, Adobe will suffer, especially given Warnock's response. (He also reneged on his earlier agreement to convert Adobe fonts to Apple's font format, causing many people to worry about Adobe's future direction.) Although some users worry about how the conflicting standards will affect them in the short run, in the long run it is clear that the second standard will cause many more high-quality fonts to be available at much lower prices and that more computer systems will be able to achieve true WYSIWYG text handling.

Apple Releases Luggable And Fastest Macs

As everyone expected, Apple unveiled two new Macintosh computers last month at a glitzy reception broadcast over two satellite bands. The two new computers, the Macintosh Portable and the Macintosh IIfx, are at opposite ends of the power spectrum.

Most people were disappointed with the size and weight of the Portable, not to mention its high price. It is clear that Apple is only trying to seed the market with a portable that is a true Mac, and is not serious about competing with portable PCs. The IIfx drew rave reviews for its speed and the fact that it works with the current hardware peripherals available for the Mac II line.



The Mac IIfx is the fastest Mac available.

To its credit, the Portable has the clearest, fastest screen available on a small system. Apple used the very new active-matrix liquid crystal display (AM-LCD) for the portable, after finding that none of the screens commonly used in PC portables updated fast enough or gave enough range of vision for a Macintosh. As PC portable users have discovered, any image moving quickly across the screen (such as the mouse pointer) often simply disappears on most screens. The AM-LCD is almost as sharp and fast as a standard Mac screen, making it less tiring to use than other portables. It also has more pixels than the standard Mac screen (640 x 400, compared to 512 x 342). The new screen, however, was the biggest factor in the Portable's high list price (\$5,799, or \$6,499 with a 40 Mb hard disk).

The portable runs at 16 MHz, approximately twice the speed of a Mac SE. Its standard configuration includes 1 Mb of low-power static RAM (which can be expanded). A novel addition to the Portable is a special power-saving circuit. When the Mac determines that the user is not being very active, it slows the CPU down to 1 MHz and shuts off power to the other components. This significantly extends the time needed between battery charges. Apple introduced yet another slot design for the Portable, and many third-party developers said that they will support it with peripherals if sales of the Portable are reasonable.

Many dealers are worried about the Portable, since it has the now-famous and always-ridiculous 90-day Apple warranty. Given that this is a new piece of hardware with a completely different manufacturing process than Apple is used to, it is likely that many glitches will arise. In fact, two of the Portables that Apple was showing at the Seybold conference went dead unexpectedly. Although Apple offers an extended warranty (as with other

Apple hardware), the cost is high and very few people buy them. Dealers are worried that there will be a high failure rate that Apple will pretend does not exist, similar to its reaction to the widely-reported crashes of many of the hard disks in its SE/30 and IIfx systems. If the Portable gets a bad reputation for reliability, dealers could be stuck with inventories.

The IIfx is not without its own innovations. The IIfx looks pretty much like a IIfx. It has a 25 MHz 68030 CPU and a 68882 math coprocessor. Internally, it is different from other Macs in that it has special support for the burst-mode RAM access of the 68030, a built-in video circuit for Apple's monitors, and an expanded 512 K ROM which contains instructions for the new hardware. The system is also Apple's most expensive, costing \$6,269 without a hard disk and 1 Mb of RAM, and up to \$8,669 for an 80 Mb hard disk and 4 Mb of RAM.

As the IIfx takes over the high end of the Mac II spectrum, Apple also announced the demise of the original II. Although it is still available in some stores, Apple president John Sculley said that the II is no longer being manufactured and has been phased out of Apple's plans. Current Mac II users shouldn't worry, however, since the cards the II uses are the same as those for the other systems in the II family; so many IIs have been sold that there will be a strong aftermarket for II hardware for many years.

Tiny Portable Draws Low Watts, Lots Of Interest

Poqet Computer recently introduced its ultra-light PC portable into a quickly-crowding market. The tiny computer, weighing only one pound and measuring 8.75" x 4.3" x 1", can run for up to 100 hours on a pair of AA batteries. The tradeoff for size and

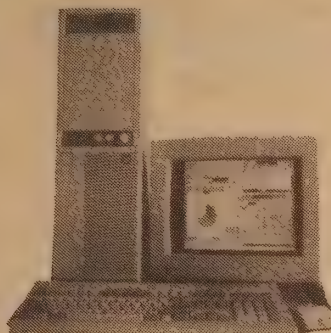
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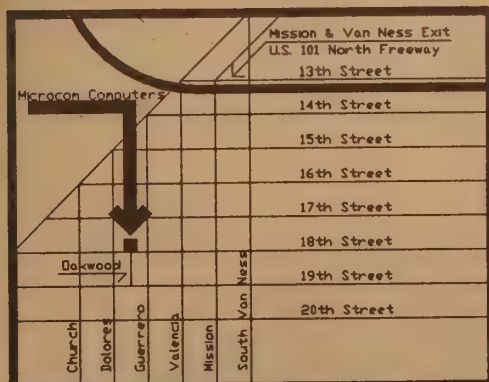
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w/42 MB Hard Disk (39 ms/MFM)	\$858	\$978	\$1,013	\$1,318	\$1,378	\$1,478	\$1,638
w/80 MB Hard Disk (28 ms/MFM)	\$1,118	\$1,238	\$1,273	\$1,578	\$1,638	\$1,738	\$1,898
386/16SX (1 MB)							
Basic System	\$868	\$988	\$1,023	\$1,328	\$1,388	\$1,488	\$1,648
w/42 MB Hard Disk (39 ms/MFM)	\$1,178	\$1,298	\$1,333	\$1,638	\$1,698	\$1,798	\$1,958
w/65 MB Hard Disk (25 ms/RLL)	\$1,303	\$1,423	\$1,458	\$1,763	\$1,823	\$1,923	\$2,083
w/80 MB Hard Disk (28 ms/MFM)	\$1,438	\$1,558	\$1,593	\$1,898	\$1,958	\$2,058	\$2,218
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Basic System	\$1,188	\$1,308	\$1,343	\$1,648	\$1,708	\$1,808	\$1,968
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w/65 MB Hard Disk (25 ms/RLL)	\$1,623	\$1,743	\$1,778	\$2,083	\$2,143	\$2,243	\$2,403
w/80 MB Hard Disk (28 ms/MFM)	\$1,758	\$1,878	\$1,913	\$2,218	\$2,278	\$2,378	\$2,538
w/112 MB Hard Disk (17 ms/ESDI)	\$2,343	\$2,463	\$2,498	\$2,803	\$2,863	\$2,963	\$3,123
w/157 MB Hard Disk (17 ms/ESDI)	\$2,593	\$2,713	\$2,748	\$3,053	\$3,113	\$3,213	\$3,373
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Basic System	\$1,328	\$1,448	\$1,483	\$1,788	\$1,848	\$1,948	\$2,108
w/42 MB Hard Disk (28 ms/MFM)	\$1,658	\$1,778	\$1,813	\$2,118	\$2,178	\$2,278	\$2,438
w/65 MB Hard Disk (25 ms/RLL)	\$1,763	\$1,883	\$1,918	\$2,223	\$2,283	\$2,383	\$2,543
w/80 MB Hard Disk (28 ms/MFM)	\$1,898	\$2,018	\$2,053	\$2,358	\$2,418	\$2,518	\$2,678
w/112 MB Hard Disk (17 ms/ESDI)	\$2,483	\$2,603	\$2,638	\$2,943	\$3,003	\$3,103	\$3,263
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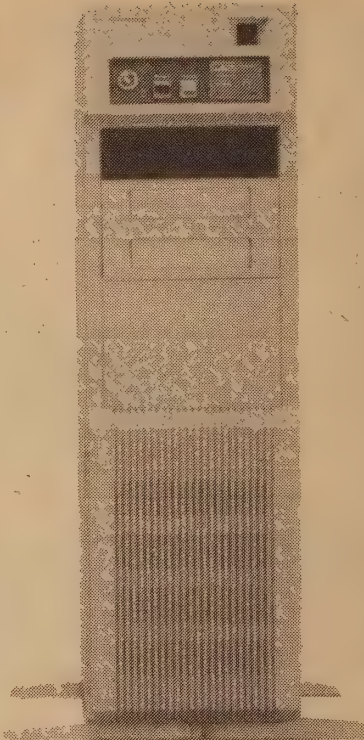
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NEWS AND ANALYSIS

low power consumption, however, is speed. The computer uses a slow 80C88 for its CPU and has a slow-refresh screen. The cramped keyboard with ultra-low travel keys will also be a hindrance to many users. The computer will cost \$2,000 when it is available in the next few months. (Incidentally, Poqet is pronounced like "pocket": isn't that adorable?)

The new computer comes with 512 K of RAM available to programs. It also has 640 K of ROM, which includes MS-DOS 3.3, BASIC, and five basic applications (notepad, calendar, address book, calculator, and terminal program). Since it has no disk drive, the computer has two slots for more RAM or software applications on ROM cards. These cards are about the size of a credit card and can contain any type of application. Manufacturers announcing support for the new card include Lotus, WordPerfect, and XyWrite. Since these programs are already loaded into ROM, they have much more RAM free than they would on a standard PC. Traveling Software also announced that it will offer a program for transferring data to and from a Macintosh. You can also buy an external 3.5" floppy drive that uses its own batteries for \$400.

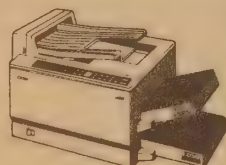
The Poqet looks very different from any other portable. In order to get all the necessary parts into a computer that small, Poqet had to completely redesign many parts of the standard PC. In fact, Poqet has applied for 15 patents on the new technology it incorporated into the portable. Many of the patents are for the power management technology in the computer. The screen takes only a small fraction of the power needed for other portable screens. Poqet expects the system to be used by people who are often away from their primary computer and want to perform standard computing functions such as word processing and data entry.

NeXT Finally Ships System Software; Begins Volume Computer Shipment

The NeXT computer is real, its operating system is real, a small number of applications for it are real, and the interest in the system is very real.

NeXT shipped the final version of the operating system last month and upgraded all the current owners of the system. At the Seybold conference (see below), the NeXT booth was quite busy, as was the demonstration area that NeXT had set up to show the NeXT computer running Frame Technology's *FrameMaker* desktop publishing software. When the NeXT computer was announced a year ago, NeXT president Steve Jobs said that the final version of the operating system would be ready early this year. The delays were due to problems with speed and compatibility with the NeXT printer.

The final version of the operating system was



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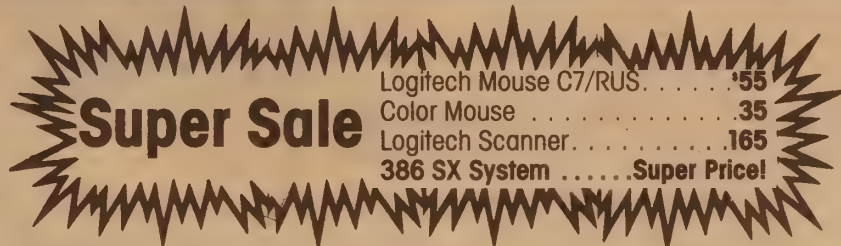
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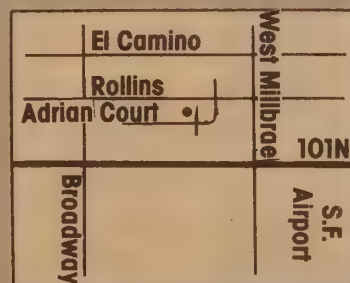
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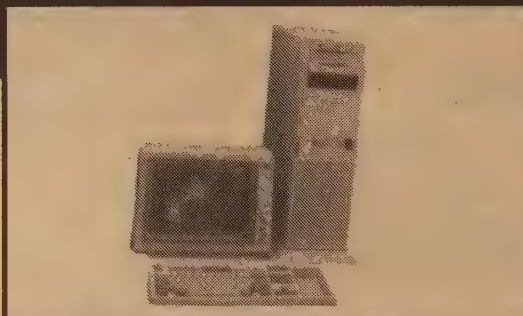
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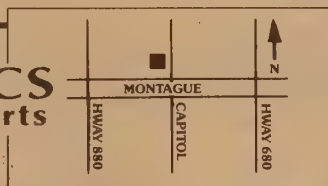
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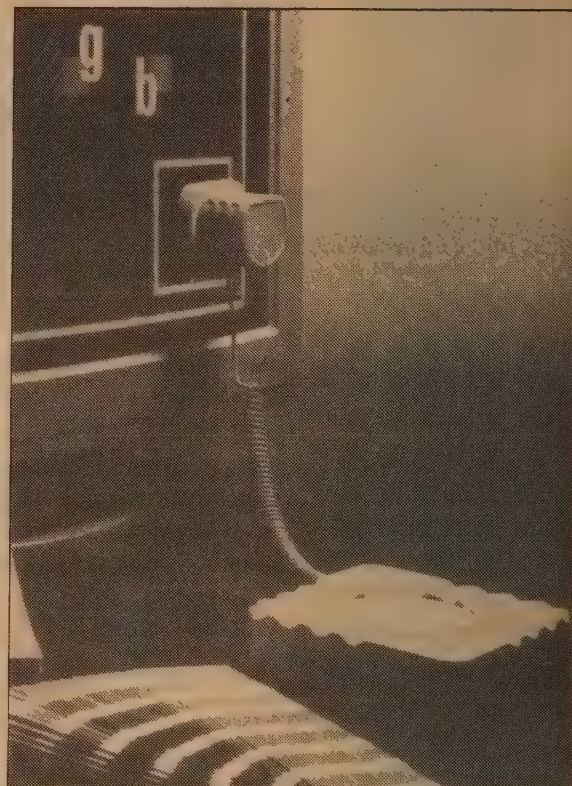
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The Radius PrecisionColor device allows true WYSIWYG Pantone colors.

somewhat of a disappointment to many, since it did not fix many of the speed problems that had plagued earlier versions of the operating system. Window updates are particularly slow on some graphics operations, and printing is still sluggish. At the Seybold conference, users could test *FrameMaker* on the NeXT machine, high-end Macintoshes, and Sun systems. The comparison was significant, since the NeXT machine was significantly slower at updating the screen than on the other systems. However, the NeXT system reacted quicker to user typing.

On the positive side, NeXT is shipping the operating system with more programs than were initially announced, and the new applications will especially please the academic market. NeXT is including *TeX*, a text formatting package popular with scientists, as well as new programming tools.

It is not clear if the NeXT system will catch on in its current configuration. NeXT says that the system should appeal to people who need UNIX workstations but are daunted by their complexity. However, you can put together an 80386-based business workstation running XENIX for much less than the NeXT system and still run ever-popular MS-DOS programs. Window updating is a problem on all graphically-oriented computers, but NeXT now has significant competition from workstation companies who are lowering their prices on bottom-end machines. For instance, Sun has many workstations, running thousands of applications, that cost less than the NeXT system.

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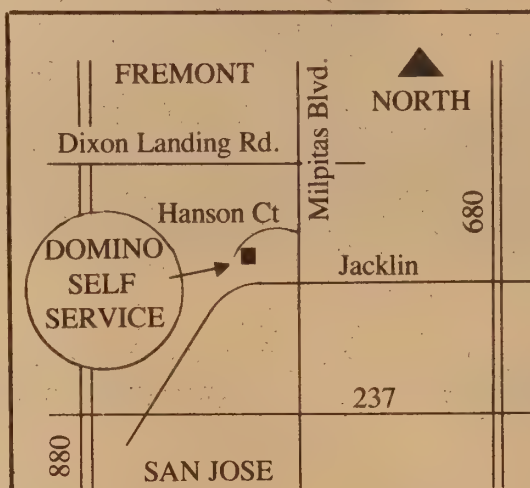
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NEWS AND ANALYSIS

package, the un-nerdly look of the user interface, the availability in Businessland stores throughout the country, and the amount of media hype he garnered last year. The first round of reviews with low-level speed comparisons won't be nearly as influential as word-of-mouth testimonials about how good or bad the machine is

Seybold Computer Publishing Exposition Roundup

Computer publishing has come of age, and the annual meeting of vendors of computer equipment and software for the publishing industry has grown more homogeneous. The announcements at this year's Seybold Computer Publishing Expo in San Francisco were quite mundane relative to those a few years ago, mostly due to the growth of the industry. Manufacturers announce new products all year at other shows, since computer-assisted publishing has reached into every major company.

Surprisingly, one of the industries least receptive to it has been the traditional magazine and book publishing industry; most of those publishers still lay out type and art by hand.

The show had only a few highlights. Sure, there were dozens of new laser printers and large monitors shown, but how many virtually identical products do you want to see? As it has matured, most of the desktop publishing software that runs on PCs and Macintoshes has also become indistinct. This, of course, is good for the end user, since improvements in one product tend to appear quickly in other products, but it makes for a fairly boring show.

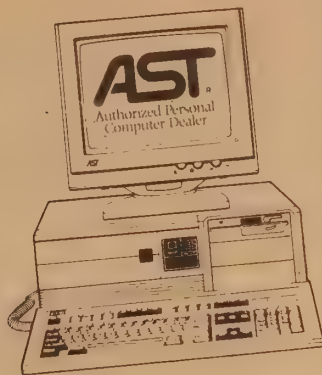
Many of the estimated 15,000 attendees at the exposition wanted to get some hands-on experience with the products. This is understandable, since publishing programs are often much more expensive than standard applications, and since publishers and graphics artists are not known for being rich. NeXT set up a separate training area: 18 NeXT systems running *FrameMaker* with people following an instructor at the front of the area. Nearby, the management of the conference and Personal Training Systems (who make training tapes for a variety of Mac products) had 30 Mac SEs set up with people listening to PTS training courses on tapes. Both areas had waiting lines and got rave reviews from attendees who felt that they couldn't get much from the salespeople in the booths.

The most exciting announcements of the three-day show were the Radius PrecisionColor calibration device for Radius and Apple display cards and Tektronix's *TekColor* fidelity system, both for the Macintosh. One of the biggest impediments to preparing color art on a computer is matching the color displayed on the screen with the color that comes out of the printing process. There are many standards for describing printed color, but there has been no way to assure that what you see on the screen would be exactly what you would see coming

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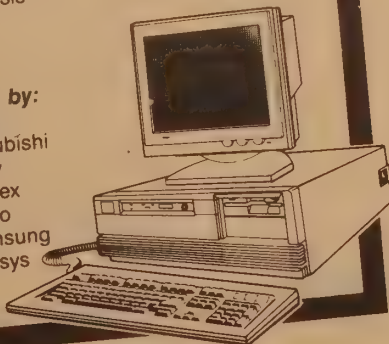
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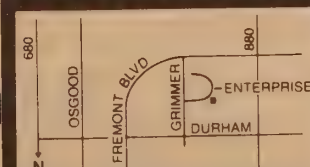
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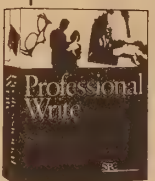
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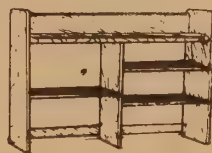
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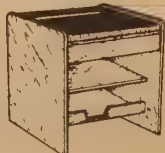
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NEWS AND ANALYSIS

out of the printer. These two devices differ in the system they use for describing the colors and the intended audience.

The Radius PrecisionColor system calibrates the Mac screen and applications to the popular Pantone color-matching system. Most commercial printing houses use the Pantone system for mixing colors for presses. The PrecisionColor device changes the output specifications of either Apple or Radius color graphics cards to match a pre-defined spec. The device is a suction cup with a light collector that you place on the screen while running a small Control Panel device. After you have calibrated a system, you are assured that a specified Pantone color displayed on the screen will look the same on all calibrated screens. Since many major Macintosh applications are licensed by Pantone to use the color system, an artist using an application that is displaying a Pantone color can be assured that the color on the screen is virtually identical to what they will see when the image is printed. As more software manufacturers adopt the Pantone system and use the Pantone color drivers, artists will be able to transfer color images between programs and be sure that the colors will remain exact and, after calibrating with PrecisionColor, will look the same on the screen. The PrecisionColor system will cost \$700 and will be available next month.

Tektronix's TekColor works very differently from PrecisionColor. TekColor is an all-software system that relies on screen and printer manufacturers to support it. If a manufacturer supports the open specification (which is based on the CIE standard), a Mac user who purchases the \$50 package can be assured that the colors on one device will match the colors on another. This means that to get identical colors on both the screen and the printer, both devices must support the TekColor standard. For now, the only device that directly supports TekColor is Tektronix's own ColorQuick ink jet printer, although Tektronix is including a database of the common Mac monitors in their optimal state. An interesting benefit of the TekColor system is TekColor Picker, a replacement for the Apple Color Picker Control Panel device. The TekColor Picker uses Tektronix's patented system for compensating for faults in human vision. For example, people normally see brightness differences in colors that are technically the same brightness, and the TekColor Picker adjusts for this.

White House Proposes Higher-Speed Computers, National Network For Researchers

Universities and government research labs should be supplied with access to supercomputers and an ultra-fast national network, according to a report from the President's Office of Science and Technol-

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NEWS AND ANALYSIS

ogy. The report is a recommendation for a five-year strategy, not a proposal backed up with a budget, although the report suggested spending \$2 billion for the enhancements.

The National Research and Education Network would be similar to (and possibly built on top of) the Internet, a high-speed network that links almost every university with commercial and government sites. The stated purpose of the network is to allow easy and instantaneous distribution of information between research sites, although it may also be used to share computing resources. With a budget, the proposal can only be used as a guideline for future projects that have real funding.

Sun Opens System Bus To Other Manufacturers

Not really expecting anyone to forsake the MCA or EISA buses for its own, Sun Microsystems announced that they will let anyone see the spec to their internal SBus for free, hoping that other manufacturers adopt the very fast peripheral bus and thus make more cards available for it. The SBus can transfer data at up to 80 Mb per second, more than twice as fast as the NuBus used in Macintoshes or the MCA and EISA buses used in PCs. Another advantage of the SBus is its ability to directly access data in segments larger than the physical memory of the computer. Sun will sell a developer's kit and make available chips for connecting SBus cards to the bus.

Sun hopes that other workstation and minicomputer companies adopt the SBus so that more peripheral manufacturers make cards for it and so that the cost of those cards drop. Sun stressed that another big advantage of the SBus is that it can coexist in a computer with other buses. Thus, if a manufacturer has its own bus but wants to take advantage of some of the cards that are already available for the SBus, it can include some SBus slots in the computer without affecting its own bus. Sun claims that over 100 vendors have expressed interest in the SBus standard.

Worst Press Release Of the Month

This month's award goes to HeadStart Technologies and their PR firm HWH Enterprises. Who needs good grammar when you have technobabble? To quote, "A brand new family-oriented computer is about to be introduced that will literally change the way we interface with these information systems. Brought to you by HeadStart Technologies, this new product is the first major computer introduction from parent, North American Philips Corporation, makers of Magnavox, Philco, Sylvania, and Norelco. Star Trek's Leonard Nimoy is your host." ■

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Fax And Beyond

This proposes continuing conversions of the present into our futures—offered for technocrats' titillation and entrepreneurs' entertainment.

Fax, Revisited

In the September issue, I passed along Kenneth Clark's proposal that fax modem-boards could double as very inexpensive, very fast modems for general data transmission—especially given their robust, standardized, error-correcting and speed-adjusting abilities.

But there's more!

It's a modem! It's a scanner! It's a printer! It's "OMNIMAGE!"

Mark Stobbs of San Francisco logically extended Clark's idea (now, why didn't I think of this?): Fax machines are available for \$600 up. They already have a modem—and a printer and page scanner. So, let's use 'em as a near-omnipotent microcomputer peripheral for users with low-volume hardcopy needs.

With minimum interface mods and support software, current fax machines could be a single, quiet, fast, plug-in box that is a printer (at 200 DPI or maybe 300 DPI), plus scanner for page-image input, plus modem. They could also double as fax units in their spare time (personal computer and fax users often have no need to dedicate a phone line and fax machine for their rare fax communications).

John Kahn of Santa Clara also suggested: Let's use a (color?) photocopier as a copier, laser printer, full-page scanner for computer-input and fax I/O.

Note: There are "only" several million non-business personal computer owners who would have a likely interest in such an omni-peripheral.

Modems For Data AND Voice

While we're modifying modems' modalities, let's add connections for a microphone and speaker, and a (cheap!) CODEC speech processor chip. With simple software utilities, we could then process digitized speech, as well as digitized images and data. Speech could be locally stored, or received and sent via modem connection—including transmission as multiplexed "voice over data" on faster modems.



Copyright © 1989 by Jim Warren. All rights reserved. Jim Warren founded the West Coast Computer Faire, the Silicon Gulch Gazette and Infoworld newspapers, Video Initiative and the DataCast proposal for broadcast-based paperless electronic newspapers utilizing personal computers. He was the founding host of the PBS Computer Chronicles series, founding editor of Dr. Dobb's Journal, and founding president of the Microcomputer Industry Trade Association.

Consider the possibilities: Local storage on disk allows "voice mail." Voice-over-data greatly enhances computer-assisted collaboration when the participants are geographically dispersed.

For such group efforts and discussion, voice-over-data allows using a single phone line simultaneously for voice and for the data being shared and discussed. That reduces or eliminates the need for two phone lines (voice, data) and conference-call complexities in such applications. (Get the Bell out of there!)

Also, consider its uses in the massive BBS world—where communication and help is usually now limited to a single stream of typed text per terminal/modem.

Data-Plus-Voice Design Tidbits

For the microphone and speaker, let's just provide a standard telephone minijack and associated electronics. Then, anyone could plug in any phone—including a speaker phone.

I seem to recall—from some venerable Stanford electronics course—that unconditioned residential phone lines were optimized for about 3 kHz—meaning that a 2400-baud modem should be able to carry intelligible speech, if the speech—presumably intermittent—is given priority over data. And 9600-baud modems can easily multiplex speech and data, with simple protocols in software.

There are numerous speech Coder-Decoder chips readily available, cheap and reliable due to wide use in telephony. Aside: Reputedly, Sun's SPARCstation 1 UNIX workstation already includes a CODEC—and most, if not all, of the other hardware just proposed. So, to prototype/implement this proposal, perhaps all you need to do is get one and add software. It's "only" \$10,000—but, for 8 megs, plus UNIX, plus more horsepower than a high-end 386, it appears to be one of the best deals around.

Michael Slater, the editor of the insiders' invaluable *Microprocessor Report*, provided some helpful pointers on this proposal.

Groupware Addenda

Robust groupware systems should:

- Allow the system administrator to permit anonymous or penname input/comments by participants. (Dislike unidentified sources? Please note that the *Federalist Papers* were written entirely under secret pennames—and are considered among the most important documents in United States government and history.)
- Allow one-to-one note-exchange and private communications in the midst of geographically-dispersed group "discussion." This is the analog of the often-essential practice of two participants in a group having a whispered exchange on the side.

Legislative Access, California Style

My last column suggested that machine-readable versions of the state Constitution and statutes be available at consumer prices. This prompted some input from a highly-placed legislative staffer regarding citizen access to legislation in progress:

It appears that the Legislature has a computerized Information Service containing bills in progress, documents from committee meetings, amendment history, committee minutes and voting records, plus the Constitution and statutes.

It runs on an IBM mainframe, accessible to a huge number of legislative aides, workers, etc. Although there are extensive safeguards against tampering, citizens and groups interested in such information cannot access it directly. They must contact some legislator or aide and ask them to spend time pulling desired information—reputedly a common request consuming considerable staff time.

Reportedly, some legislators are wildly opposed to allowing the public full read-only access to this information—and their opposition isn't the slightest bit concerned with potential harm to the system or data.

(I keep saying, "Knowledge is Power!")

Also reported: The Assembly has its own extensively utilized statewide DECnet connected to numerous PCs and Macs. On the other hand, the State Senate has terminals tied directly to the IBM mainframe, and Senate workers find using it often difficult and infuriating.

Industry Heavyweight Comments

In late September, a 747 blew three or four tires upon touchdown at SFO—no human harm, but definitely bumpy.

Ted Nelson was one of the passengers. Now, I knew Ted was an computer heavyweight, but gee, blowing 747 tires in a single bound!? (Ted is the delightful "computer fantasist" who authored *Computer Lib/Dream Machines*, originated the name "hypertext," and popularized its concepts. He first proposed the powerful linked-text concepts at least a decade before Mac's *HyperCard*—and about a decade after Doug Engelbart began implementing such a system at SRI in the 1960s.)

When interviewed for passenger comments on the shaky 747 landing, Ted said, with uncharacteristic brevity, "I thought, 'Well, gosh!'"

"Gosh!""?

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Send suggestions to Jim Warren, Realizable Fantasies, 345 Swett Road, Woodside CA 94062. Published proposals will be attributed to their authors unless anonymity is requested. ■

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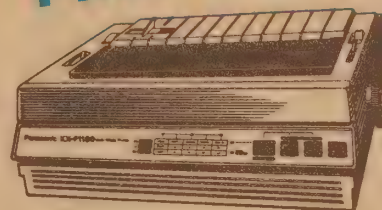
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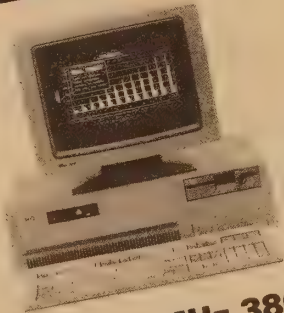


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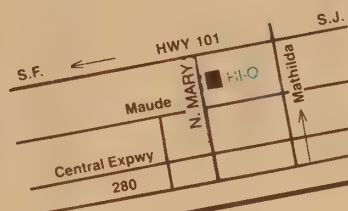
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Industry Leaders On Doing Business In Japan

On October 6, at the Alliance Japan conference in San Francisco, several successful high-tech entrepreneurs recounted their experiences in the Japanese marketplace and offered advice to those seeking to do business in that arena. Sponsored by Creative Strategies Research International, the conference set the stage for Alliance '90, a symposium on US-Japan business opportunities slated for next year in Tokyo.

Mitch Kapor

(Founder, Lotus Development; Chairman, ON Technology):

It was about five years ago that we started thinking about how to enter the Japanese market. There was some very sound logic—Japan was and is potentially the second largest software market in the world. The business culture there is vast, it's influential, it's technologically sophisticated, and the penetration of micro-computers was just beginning.

With respect to the market for spreadsheets in particular, our view was that the securities and banking markets in Japan were going more international, and that Japanese executives needed technology more powerful than pocket calculators and handwritten ledgers in order to compete effectively with other firms in global financial markets.

We thought it would take nine months to adapt 1-2-3 into a Japanese version. It took a bit over two years, and it cost about \$5 million more than we thought. The cause of that delay and expense can be summed up as overcoming cultural incompatibility.

The first problem had to do with data entry. Japanese write in a combination of four sets of symbols, one of which is Kanji. There are tens of thousands of Kanji ideographs; they have multiple pronunciations, multiple meanings, and they're completely incompatible with the standard unmodified Western-style keyboard entry.

What we did was to form a time-limited single-project partnership with a Japanese software development firm which had written that country's most successful word processing program.

That was the beginning. Our partner also showed us how the Japanese record dates in terms of the year of the

emperor. Nineteen-eighty-five was recorded as Showa 63, the sixty-third year of Emperor Hirohito's reign.

So we thought we would be clever. Noticing the fact that even emperors don't live forever, we wanted to include a provision for entering the new emperor's name when that came so that the dating system could be up to date. In a very polite way, we were told not to even *dream* about marketing a product that questioned the emperor's immortality.

We were also persuaded to take out the beep that 1-2-3 makes when it wants to signal some kind of user error. Japanese typically work in close physical proximity in open offices, and the noise would be distracting. But that's not the real reason. To broadcast an audible beep to co-workers which advertised one's mistakes could represent a loss of face. We made the beep optional.

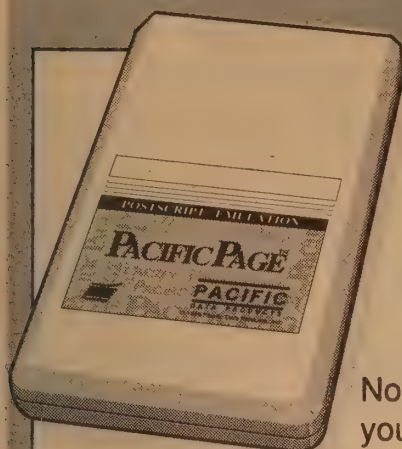
It turned out that the language translation, which originally seemed to constitute the most difficult and largest part of the adaptation problem, was really the easiest part of creating 1-2-3 J. The tough part was learning how the Japanese work, and how they think about computer technology. I gave you two or three examples of literally hundreds of changes that were made to the product to make it culturally compatible.

This year, 1989, Lotus will sell 250,000 copies of 1-2-3 J, for revenues in Japan of \$45 million, which is a little less than 10% of Lotus's worldwide revenue. 1-2-3 J is, I believe, within a hair's breadth of being the best-selling software package in Japan, and with the coming release of the first comprehensive business graphics package, *Freelance J*, Lotus's prospects in Japan are pretty bright. A relentless attention to detail, the willingness to do whatever's necessary to make a high-quality product, were all integral to the suc-

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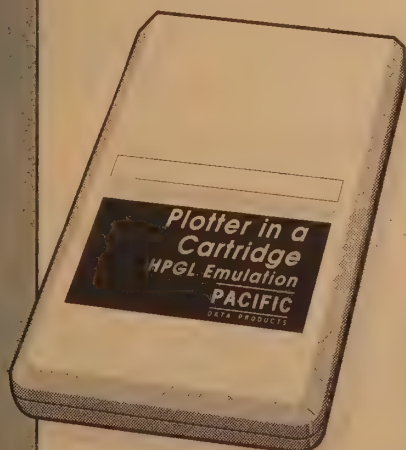
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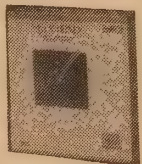


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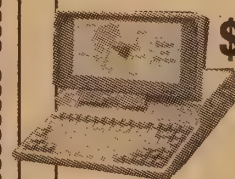
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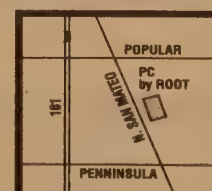


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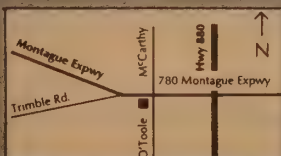
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It's not just the product, it's also the marketing—the way the product was rolled out, the type of advertising that was done, the type of customer education that was done were all radically different from what was done here in the US. It took longer, it cost more, but you heard the numbers. It's been worth it.

However, the success of a company in Japan cannot be said to rest entirely on the merits of its own efforts. We're entrepreneurial. We like to believe, we *have* to believe that our destiny is in our own hands; otherwise we wouldn't do what we do. But the fact of the matter is that individual business relationships between American firms and Japanese firms also depend on the health of the overall relationship between the United States and Japan.

I'm relatively optimistic about the

think really doesn't fit well in a world economy whose fundamental character is changing to be one of complete interpenetration and interdependence of individuals and firms, one with another around the world. I think what's called for is more global thinking for a global economy.

My modest proposal as to where to start is that we engage and encourage a de-escalation of rhetoric. So, for instance, we in America should agree to have US Congressmen stop destroying Toshiba radios with hatchets on Capitol Hill to make a point, but on the condition that at the same time the Japanese discourage former government officials from suggesting that Japan should stop selling key semiconductors to the US military and start selling them to the Russians to teach us a lesson.

We Americans have got to get our act together better. The obsession

Mitch Kapor:

“The American obsession with quarterly profits and short-term thinking in the US business community make it impossible to make the kind of long-term investments necessary to build a healthy economy.”

ability of an individual American firm to work with a Japanese company and to succeed and enter into the Japanese market. I'm more concerned about the ability of our two nations to live and work together with one another as we move toward the next century.

Americans and Japanese seem to be more alike than different in their preoccupation with national identity and character, their special role in the world. If carried to an extreme, it leads to an inward focus and a preoccupation with the national self that I

with quarterly profits and short-term thinking in the business community in this country make it impossible to make the kind of long-term investments necessary to really build a healthy economy. Wall Street has to let up the pressure on firms to produce quick-fix, short-term results.

Other than that, I think we have to take to heart some of the criticisms brought by the Japanese about our culture. We have to have some financial discipline. Why is it that we can only save 5.5% of our GNP, and the Japanese people can save 18%? Every

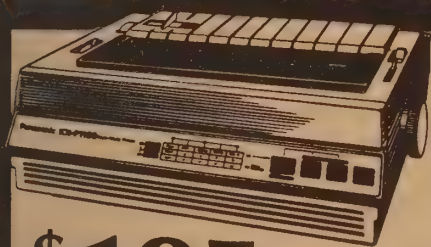
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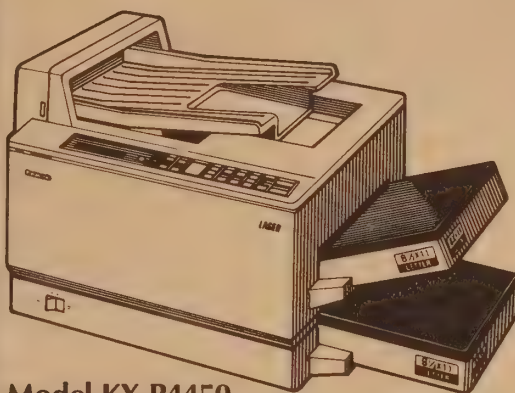
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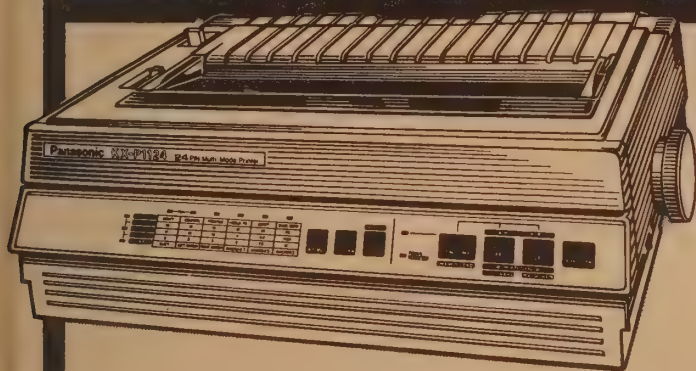


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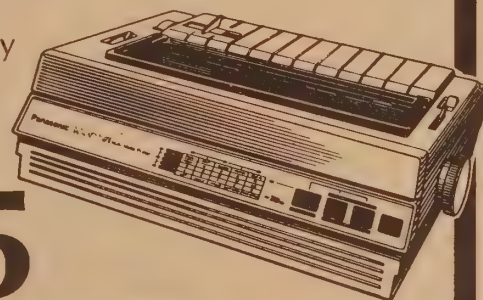


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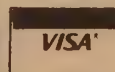
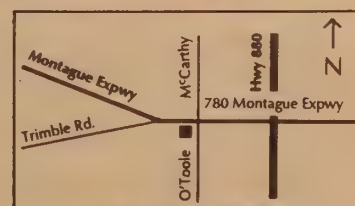
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time I see Donald Trump on the cover of a magazine, I get upset. Not at Donald Trump the individual, but for the society of instant gratification that he represents. We have to do something to restore the American character and place its faith in working for the long term and working cooperatively.

To the extent that there are still some barriers having to do with convoluted regulations on imports and business practices, I think it's really important that we have a national effort that focuses on a market-by-market basis, sitting down with the Japanese and discussing the details of how we're going to have a level playing field in a mutually acceptable way.

Vinod Khosla

(Co-founder, Sun Microsystems; General Partner, Kleiner Perkins Caufield and Byers; President, Dynabook):

There are cultural differences. Japanese are much more process-oriented, organizationally oriented; there's a lot more cultural homogeneity, and they have much more of a group orientation. In the US, we have a very different bias. The US tends to be much more short-term-results-oriented—"I want to get it done, and I want to get it done quickly." Obviously we are much more heterogeneous, and we're much more individualistic, and probably have a bigger flair for risk-taking. All this affords us a couple of opportunities to do things that are complementary.

What are areas for future cooperation? Let me tell you a little bit about Dynabook. Today the product is sold in the market; it just started shipping last month as a hot portable product. The specs are great.

Unfortunately, that's about 10% of what I wanted to do with that company; the objective of that company is a much broader vision, a much deeper message. Unfortunately also, being a little company, it has no resources to do any of that, and the only way it will get any of those resources is through an alliance with a much larger company.

There's a number of alliances possible in the US market, but eventually, since you're trying to go after the same market as some other US company, you end up in all kinds of perceived conflicts. It also turns out that for various reasons, not related to it being a portable at all, the product is very well suited to the Japanese market. It just seems like a perfect opportunity; it also seems like an opportunity where without an alliance we will probably realize 10% of our potential. Which may still be very successful and very good, and we

may feel great about it, but the fact is there's a much bigger win possible.

It also is a much bigger win for some Japanese companies who don't understand the distribution channels and the PC market and some of the innovative technology features that have been added to this product. I see that as a great opportunity for win-win.

Another example—another tidbit of rumor. I don't know this for a fact, but I've heard that Apple and NEC are cooperating on the building of an Ultralite Macintosh. That, again, sounds like a great win-win to me. NEC can clearly help Apple, especially if you look at the portable Apple has just announced. The Ultralite that NEC markets in the US is about the size of the screen of the Apple machine. That's a great opportunity to cooperate—use NEC's strengths in manufacturing, display technology and miniaturization, with Apple's knowledge of the market, its distribution channels here, and its market intelligence.

Nintendo is cooperating with a number of players, some in the financial market, and it's rumored that they're also collaborating with AT&T to add communications to a Nintendo game machine to reach every home.

Philippe Kahn

(Founder, Chairman and CEO, Borland International):

We've been quite successful; *Turbo Pascal* is used widely in schools and universities in Japan, and since its introduction we have brought the presence of Borland to Japan with our full line of programming languages.

We've done so in a little different way from the way we would have done it in America. We noticed that in Japan you couldn't go out like you would in the United States and use the same techniques of marketing, even if you have an excellent product. Rather, what we looked for were alliances with established Japanese partners.

We started with an alliance with a company called MSA, Micro Software Associates, which is financed by some large Japanese financial institutions who are what you would call, in the United States, silent partners. That had a big advantage in that Borland Japan was able to invest for the long term, in market share, rather than in quick profits. Which permitted penetration of our programming languages deep into the Japanese school systems and universities, and assured our presence in the long term.

We've done that because we had some technology to bring to the table. I don't think it's possible, unless

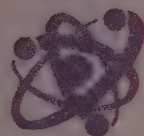
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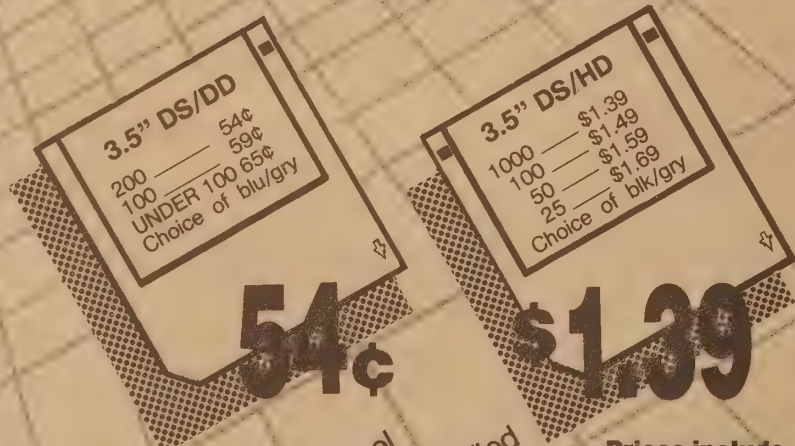
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Don't expect to take a US product, put double-byte character support in it, and succeed. It's just not going to work. Our job as software companies is to work the way our users work, and not force them to work the way

some software designer decided they had to work.

Nat Goldhaber

(Founder, TOPS; Principal, Cole Gilburne Fund):

My suspicion is that there's an interesting cultural difference between Japan and the United States which might be valuable in some unexpected ways. It's my belief that we in the United States are much more of an individual-oriented society—individuals are the performers, the group is somewhat less important. The reverse I believe to be the case in Japan.

I suspect that the microcomputer as a tool for the individual may have gained some popularity in Japan, but will really come to preeminence when real networking and group productivity software come to the fore. I suspect that group productivity, that is, real groupware, will find a more fertile ground in Japan at an earlier stage than it will in the United States, and that we'll see it move back from Japan to the United States over time. That's the one area where I think there's some real synergies that could be gained by relationships with very advanced-thinking Japanese companies and more of a global perspective. ■

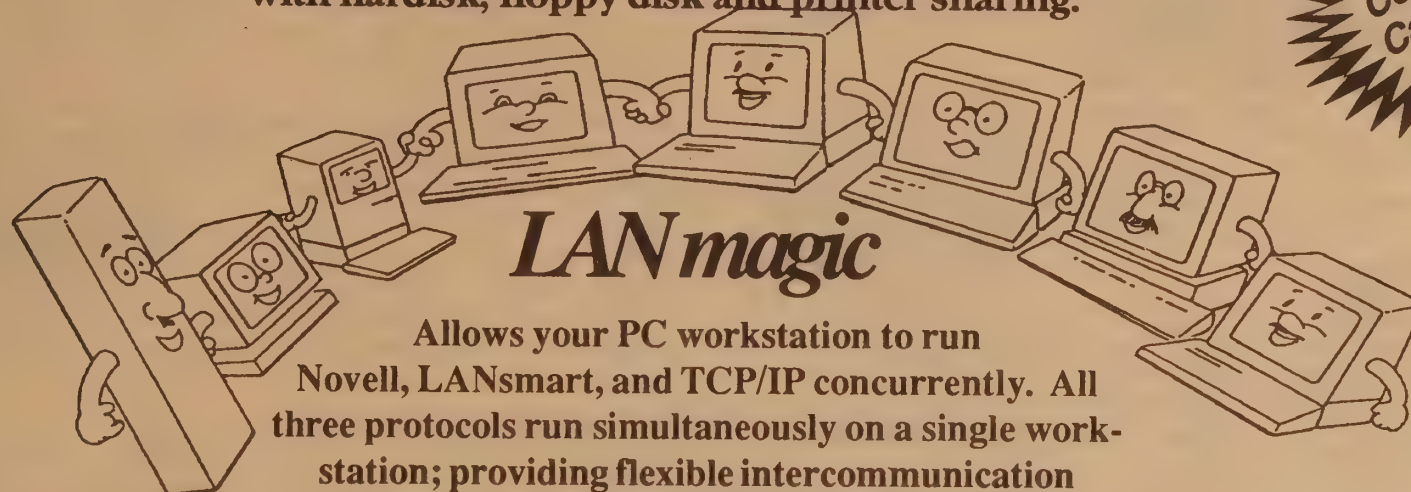
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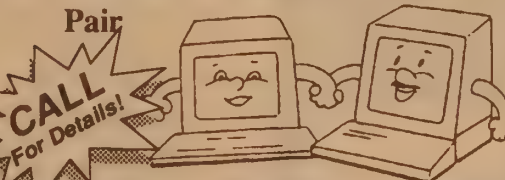
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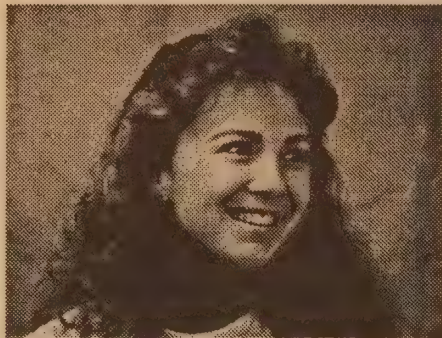


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MicroTimes Turns Japanese

By Tony Rocco

Yasushi Iba was driving along the West Coast about two years ago on his first visit to the States when he came across Silicon Valley. The founder of JCAD, a Japanese CAD company, was mightily impressed with the size and scope of the computer industry residing there. A little farther south in his travels, Iba picked up an issue of *MicroTimes* while making the rounds at several LA-based computer shops. It was about the time of COMDEX, the computer industry's largest trade show and circus.

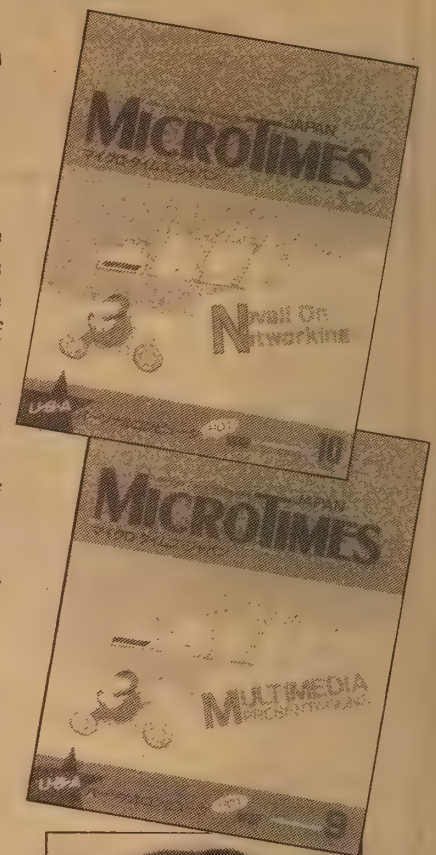
Later, after his visit, the proverbial light went on in Iba's mind: the Japanese market was ripe for a magazine about the growing American personal computer industry and marketplace. But such a magazine would have to be written in English to convey the full character of the industry. Remembering *MicroTimes* magazine from his western trip, Iba contacted Publisher Dennis Erokan to discuss bringing the magazine to Japan. The rest, as they say, is history.

This year, issue #60 of *MicroTimes* became the first issue to turn Japanese, with 1,000 copies distributed to 130 universities in Japan. The American edition gets a new Japanese cover and several pages of Japanese editorial and advertising. The magazine is still free, but subscribers must pay the cost of postage.

Wouldn't it be better to translate the magazine into Japanese? "I think it is most important to introduce your stories and advertisements as they are in English, to transmit the American culture," Iba says. "I think if such bilingual magazines were published all over the world, and you could keep the cultural exchange going between the US and other countries, it would be wonderful."

Iba says that while the Japanese can get their hands on any amount of information about the business and technical aspects of the computer industry here, *MicroTimes* supplies them with a unique perspective on the culture of the personal computer industry.

Right now, Iba says, his readership is a little confused with the magazine, but he believes it's just a matter of time before they come around to its concept. "Before long, they will realize that the idea of a bilingual magazine, a cross-cultural magazine, is wonderful." At this point it's too early to say what they like most about



**Yasushi Iba brings
MicroTimes to a
Japanese audience.**

MicroTimes, but he says that many readers are interested in the cover story interviews profiling industry movers and shakers. They are also quite amazed at the price of computer hardware and software here. "How cheap US-made products are!" Iba remarks.

For the future, Iba plans to expand the circulation of *MicroTimes* to 10,000 copies monthly, and get it into the hands of non-students. And he is not entirely happy with just a one-way transmission of ideas and information from the US to Japan either. He wants it to be a two-way street. "Now, through *MicroTimes* we receive the culture of the US computer industry and give back nothing to the US. In the future, when we find someone with his own opinion about the Japanese computer industry, we will suggest that he write for *MicroTimes*. We hope Americans can get to know the various faces of Japanese culture through the Japanese computer industry." ■

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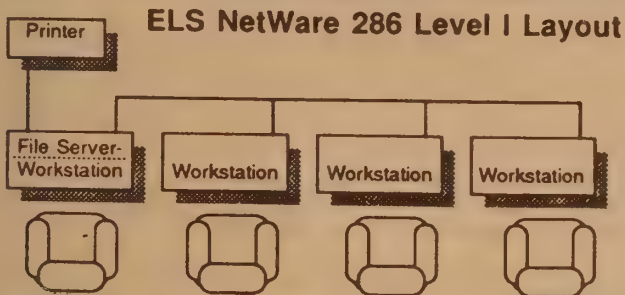
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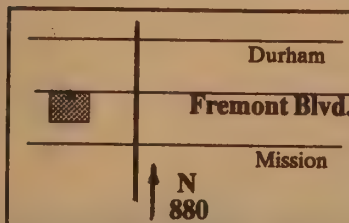
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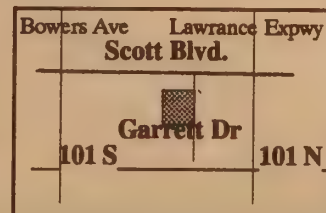
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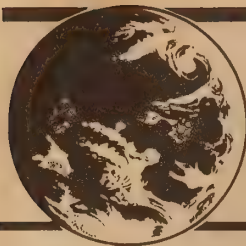
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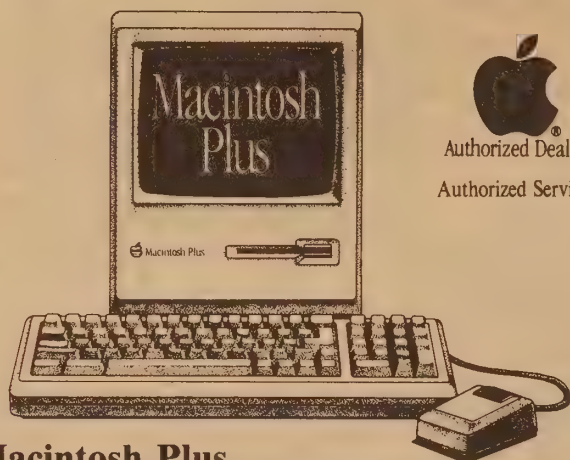
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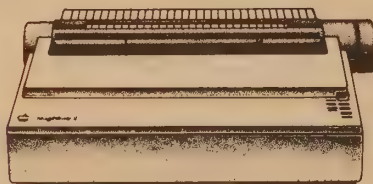
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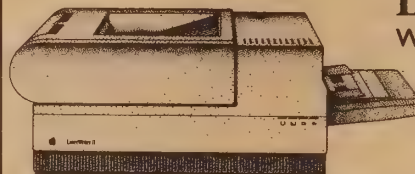
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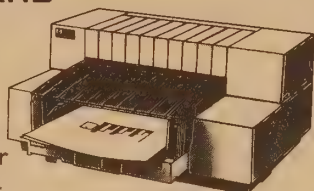
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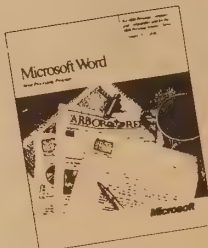


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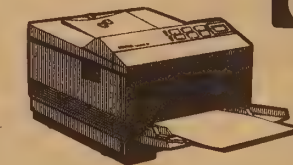
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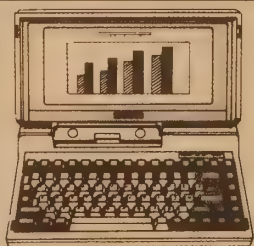
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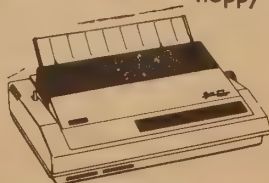
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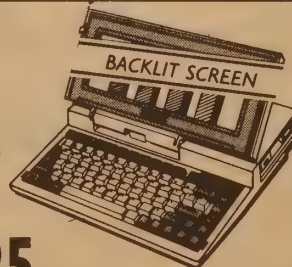
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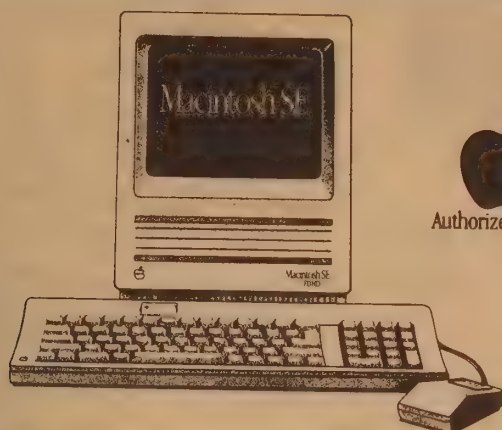
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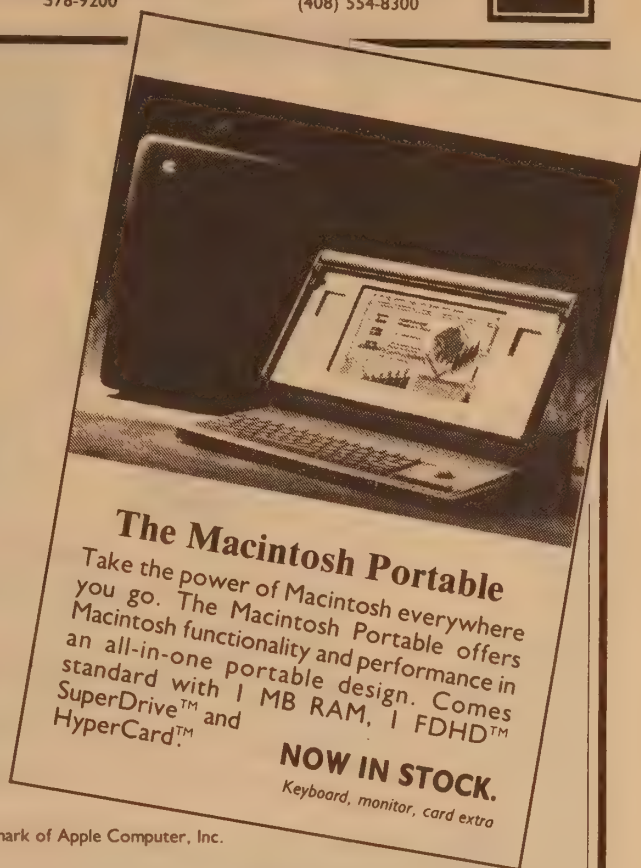
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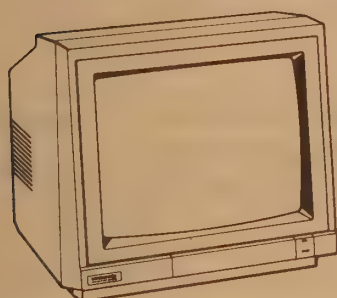


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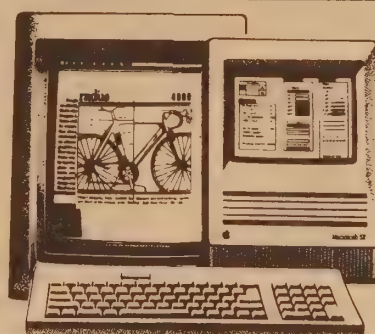
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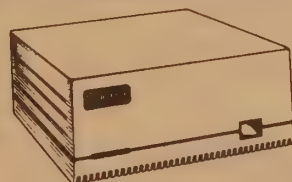
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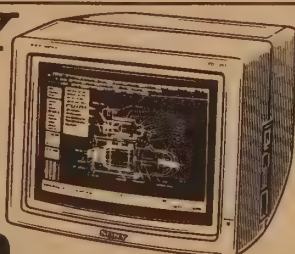
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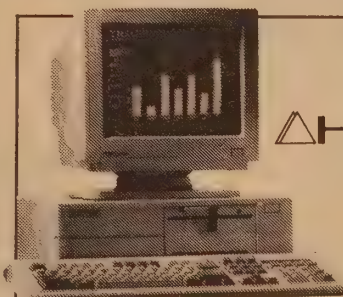
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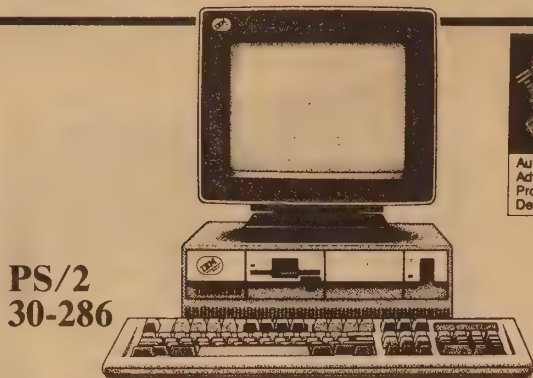
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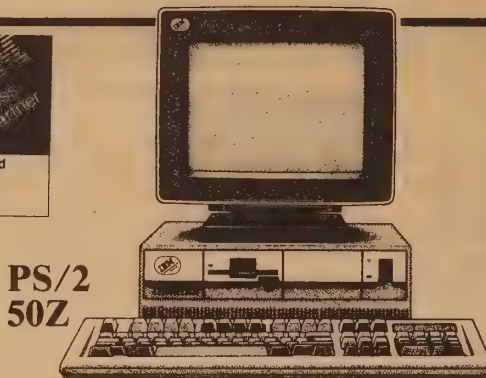
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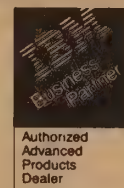
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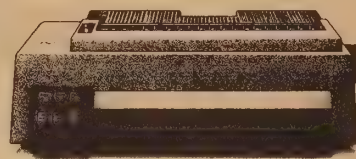
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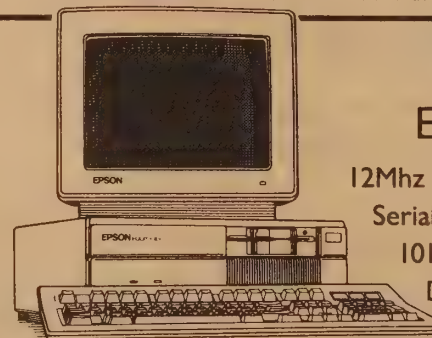
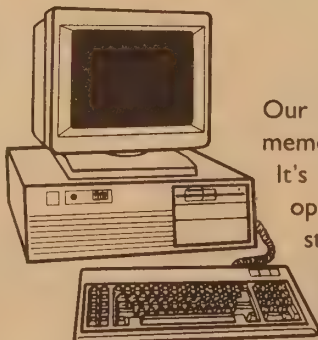
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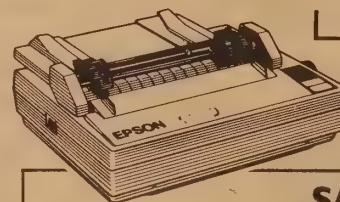


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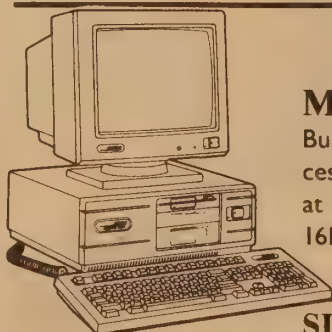
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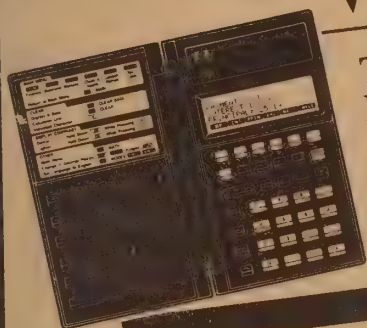
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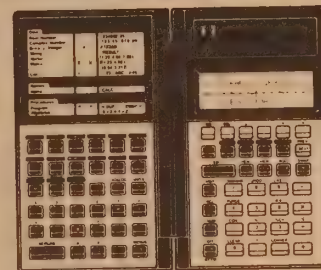
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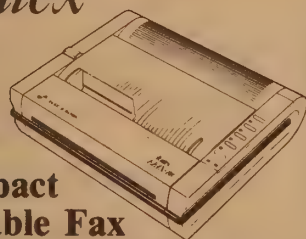
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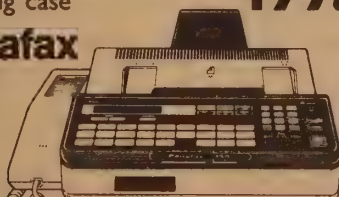


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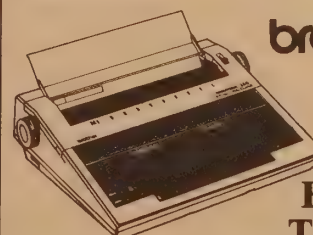
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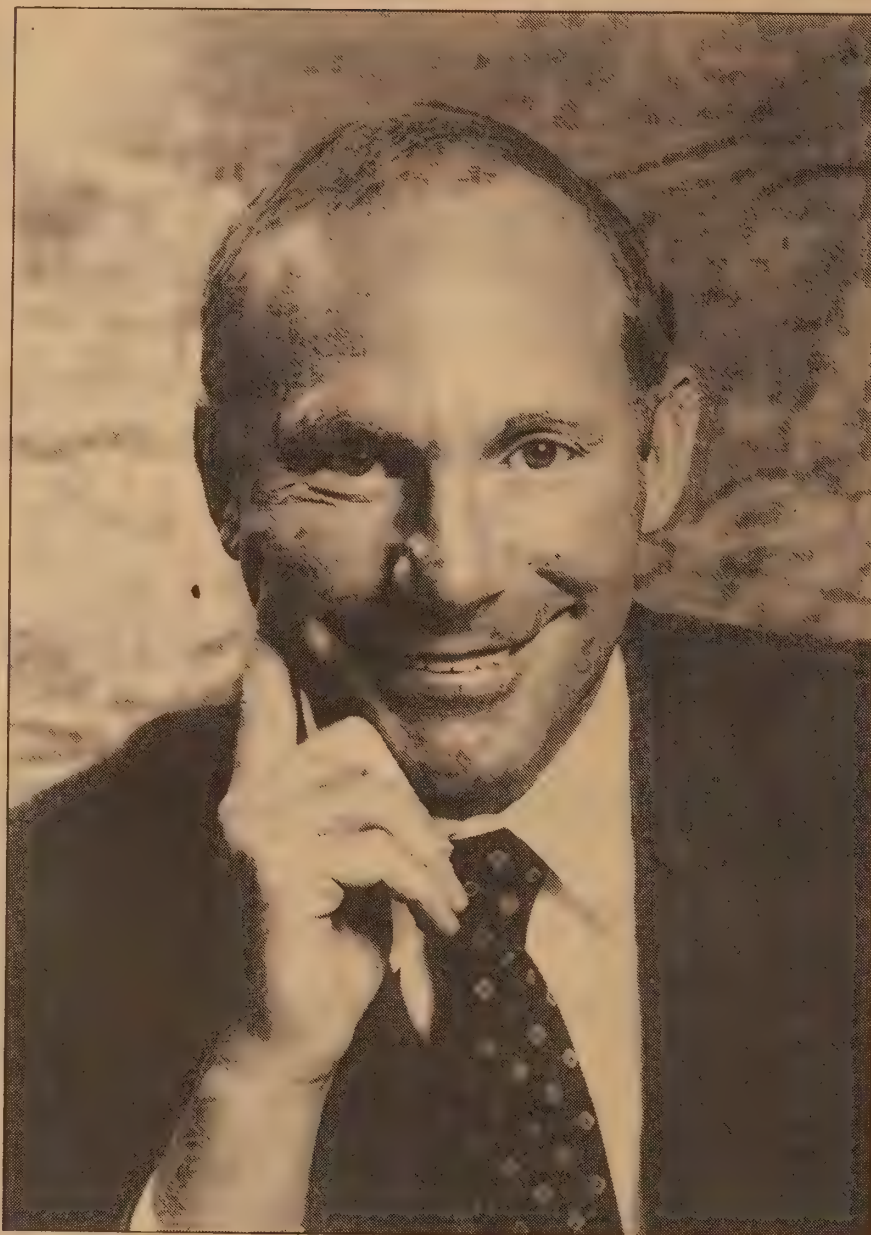
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By
Mary Eisenhart

Photos:
Jay Blakesberg

At a time when most American high-tech companies have either moved their manufacturing offshore or are aggressively exploring the possibility, one company built a brand-new, state-of-the-art disk drive manufacturing facility in Oregon, creating hundreds of new jobs and providing the marketplace with quality American-made product.

The company is Fujitsu. And, further dispelling the prevalent myth of quality mass production as an exclusively Japanese phenomenon, the plant in Hillsboro, Oregon, has met and frequently exceeded production and quality standards of its sister plant in the old country. And in addition to supplying drives to the US, it is now exporting drives to Fujitsu customers in other countries.

Fujitsu, a gigantic Japanese multinational corporation, had its first big success selling telephone equipment in the

wake of a massive earthquake during the '30s. Its products range from chips and supercomputers to printers, telephones and fax machines. Its primacy in the Japanese market parallels that of IBM in the US.

Fujitsu's been in the United States in one form or another since 1968; Fujitsu America, its US-based subsidiary, was founded in 1979, its main business being the manufacture of high-quality mass-storage devices to Original Equipment Manufacturers. Its current OEM business continues to thrive, and the company has recently expanded its presence in the distribution channel as its printer business has grown.

Long a master of the strategic alliance, Fujitsu can be found contributing to the success of many American-as-apple-pie companies, with Amdahl and Sun Microsys-

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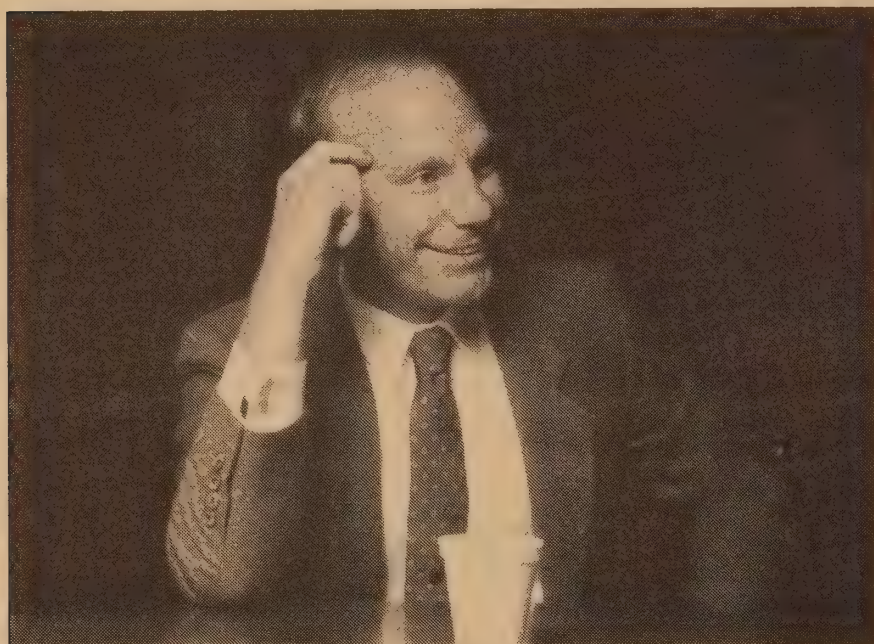
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"I like to tease my American disk-drive competitors, 'Who is more American, American companies who are all building their drives in Singapore, Korea, and Thailand,



and have laid off hundreds of people here in Silicon Valley, or Fujitsu America, a Japanese company that has 600 people that we hired in Hillsboro, Oregon, and is building drives here, close to our customers?"

tems prominent among them. In the case of Sun, not only did Fujitsu sell the fledgling company disk drives on terms it could live with, they are now promoting the SPARC standard and manufacturing SPARC chips. The trade benefits are mutual—not only do Fujitsu products do well in the United States, but Fujitsu markets the products of its allies in Japan.

All this is in keeping with an increasingly global view of doing business as multinationals all over the world get ready for the '90s. In 1992, Western Europe will become a single unified market, a potential threat that both Japanese and American corporations are taking very seriously. Global colossi are busily setting up national subsidiaries, partly by way of natural expansion and partly as a reaction to protectionist policies.

Fujitsu's US operation offers some insight into the corporate strategies necessary to adapt to a changing economic world. Headquartered in San Jose, it has the true look and feel of an American high-tech company, and in fact it's been there quite a bit longer than some of the Valley startups it supplies.

We recently visited Fujitsu and spoke with Michael

Gluck, the senior vice president of the Computer Products Group, who is highly qualified to discuss life at Fujitsu in comparison to US corporate experience. A 16-year veteran of Control Data Corporation, Gluck is well-versed in the ways of giant American corporations. He's been with Fujitsu for five

and a half years, having been recruited by the group's president, Norm Petersen, for whom he had worked at CDC. (The vast majority of Fujitsu's US employees are American nationals.)

How long have you been with Fujitsu, and how did you get here?

I've been here five and a half years. Before that I was with Control Data.

Which is about as American a corporation as you could ask for...

That's right. Mr. Norris didn't want to buy any Japanese typewriters or anything else.

Norm Petersen, who's president of Fujitsu's Computer Products Group, called me up and said, "I've got this great job at Fujitsu." I had worked for Norm at CDC, and of the 13 managers I had in my 16 years there, he was really one of two that I'd be happy to work for again. I told Norm, "You're a super guy, I'd love to work for you again, but there are problems. I don't really want to compete with Control Data, and I don't really want to work for a Japanese company."

Norm's a good salesman, and said, "Well, as long as you're in the computer business you'll be competing with both the Japanese and Control Data, so why not work for a Japanese company for a couple of years? You'll be more valuable to the next Silicon Valley company down the street..."

So I kind of took it as a flyer, because I trusted Norm, and

five and a half years later I see myself retiring with Fujitsu. It's a very good company.

How is working for a Japanese company after working for a major American corporation?

It's very interesting. In a lot of ways it's a lot easier and a lot more enjoyable than my experience at Control Data (laughs).

I jokingly tell people around here that my experience at CDC prepared me well for the Fujitsu experience. I love the company and I love the people, but it was a matrix-managed company. You had 15 people that could say no, and maybe one or two that could say yes. If you had an idea that you wanted to do, you had a lot of people that could block it, so you had to kind of use power-by-personality, sell your idea to many people. It took a long time, and therefore you had to have a lot of patience.

It's pretty much similar with the Japanese—it takes a long time to get something approved, and you have to sell it to lots of people, and re-sell it.

That's the negative part about working for a Japanese company, that a lot of people find frustrating—the time, and repeating the question, and second-guessing, and the detailed questions that they ask. But for me it was not much different, and the positive part is I really enjoy the cross-cultural experience.

My job is similar to what I had at Control Data—I was VP of sales and marketing for one division. But here, trying to learn how to be successful on two sides of the ocean is, to me, fascinating. I'll never claim to be an expert, even after five years, but I've learned a lot about how to work with the Japanese, and I've come to respect a lot of what they have. I've come to respect a lot of the very positive aspects of the American culture. What we have here, I think, is a good blend of the best of both worlds.

Could you give an example of how that might work?

Well, Fujitsu has, like IBM, become a global company. Even their motto here is: "Cooperation and co-prosperity: a cross-culture company." That starts right from Mr. Yamamoto [Fujitsu's president in Japan]—Fujitsu's philosophy is that if you want to be a successful company, you cannot just engineer or manufacture products in your home country; you really have to be a global company. That means be able to design, engineer, and manufacture products in various parts of the world, and market them. Marketing should be localized to the country, but the manufacturing and engineering should be globally done.

So to that extent, Fujitsu is the most forward and advanced of any of the computer companies here in the United States, in being a global company. We were the first Japanese company to start repairing disk drives in the United States, the year after I joined. We were the first Japanese computer company to start manufacturing disk drives, and that was three years ago in 1986. At that time the yen was 240 yen to the dollar, and when Norm Petersen stood up at the Data Storage Conference and announced our Hillsboro factory in the fall of '85, people asked him incredulously how anyone could build drives economically in the United States—our labor rate is so high and everybody's going offshore. Fujitsu was doing it, for global reasons, to be close to the customers, to be a global company, and to take advantage of the engineering and manufacturing capabilities that we have here.

We started our own engineering division here two years ago—we've got about 30 engineers here in San Jose—and then we acquired an engineering company in Colorado, in November of '87, called Intellistor. They had designed some controllers for us and did a great job; they came from the high-end IBM [mainframe] compatible world, and so after we gave them two projects, they became happy with Fujitsu and we became happy with them. When we acquired them they had 46 people; now there's 125 people.

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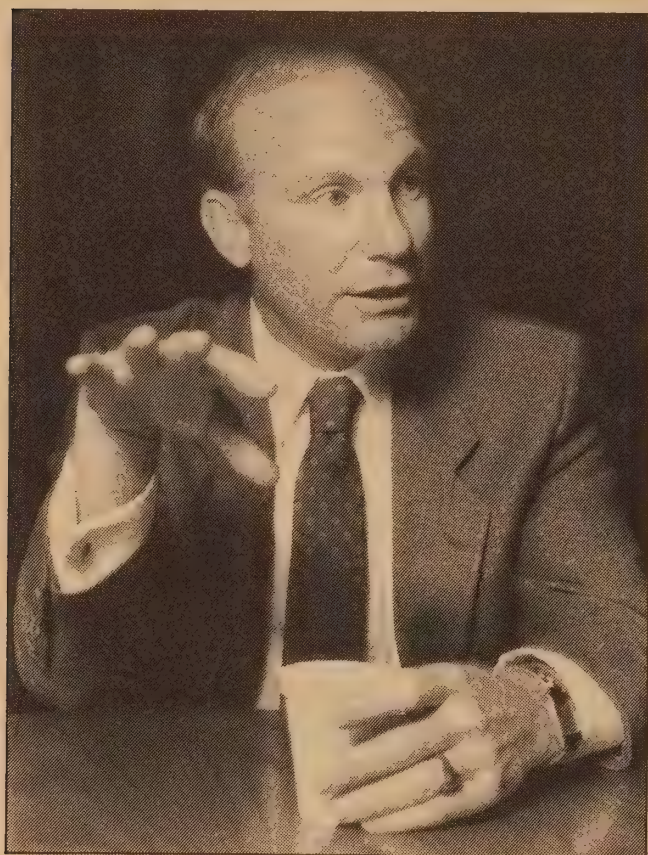
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in Japan, you'd better have Japanese nationals. Because they understand the customers—people like to talk to people that understand the language and the culture."

ler for the IBM compatible 3480 tape drive—it's a rack-mount unit that we're marketing to OEMs; Fujitsu's using it on their own systems in Japan. That has 18 VLSI chips that they designed in Colorado, using Fujitsu's chip technology, and that is going into manufacturing in Hillsboro, Oregon, this month. Hillsboro will be the only manufacturing facility worldwide for this product.

So this is the first designed-in-America, made-in-America product, exported to Japan, used as an integral part of some of Fujitsu's domestic mainframes. Fujitsu has really, truly become a global company.

I like to tease my American disk-drive competitors, "Who is more American, a Seagate-Imprimis-Maxtor-Micropolis-Miniscrite-Priam, who are all building their drives in Singapore, Korea, Thailand, and have laid off hundreds of people here in Silicon Valley, or Fujitsu America, a Japanese company that has 600 people that we hired in Hillsboro, Oregon, and is building our drives here, close to our customers?"

We don't look at it as an American company or a Japanese company; we look at ourselves as an American company with a Japanese parent. There's 4500 people here at Fujitsu America, and less than 200 or so are Japanese nationals. So we're really a cross-cultural company, in terms of being able to take the best of Fujitsu's technology and use it where appropriate. Many times we will use local sourcing and our own ideas here.

Is there a specifically Japanese influence that you sense in the company? It's hard to talk about that without lapsing into clichés, but there is an obvious cultural difference between Japanese and American companies.

In the sales and marketing, we're very much an American company. That's the way Fujitsu wants it—that's the way I think you should market your products. If you're going to be in Europe, you should hire European nationals. If you're going

to be in Japan, you'd better have Japanese nationals. Because they understand the customers—people like to talk to people that understand the language and the culture and so on.

The Japanese influence is in the engineering and manufacturing. Even though Hillsboro is part of Fujitsu America, and even though Intellistor is a subsidiary of Fujitsu America, from an engineering standpoint—and Norm Petersen is chairman of the board, and I'm on the board—they are really considered to be part of Fujitsu Japan's global engineering, global manufacturing. We really shouldn't have the luxury of saying, "Well, we're going to design this product by ourselves, without talking to Fujitsu, and manufacture this product." Because then you're duplicating resources unnecessarily. All that is centrally coordinated and controlled.

Also, if we're going to put Fujitsu's name on it, it better have Fujitsu's reliability and quality. It's funny—when we opened the Hillsboro plant and started making Eagle disk drives, which are known for the highest reliability and set the standard in the industry, everybody was very happy that we were building Eagle disk drives in Hillsboro, but then they said, "But I want mine from Japan." (laughs) It took almost a year before our customers really fully had the confidence. At first we took 70% from Japan, and then 50-50, and now we're taking all our products out of Hillsboro—in fact exporting some to other countries. It took a year to convince customers that we can make

products with the same or better quality on this side of the ocean.

The test process, the component selection process, qualification process—all the key components are the same. The manufacturing process is the same, the test equipment is the same, so everything goes through the same steps as it does in Japan. The only real difference is our first-pass yields—in other words, did we do it right the first time here in the US versus in Japan? That's how they measure our plant manager up there—what's our first-pass yield, the productivity of the American worker versus Japan?

We've been able to meet, and sometimes exceed, on a monthly basis, the quality in Japan. Of course, we have the additional benefit of having the most modern factory—Mr. Yamamoto, the president, was here when we opened the factory, and he said, "This is my most modern factory, and it is located outside of Japan." They took the best factory in Fujitsu and improved on it, so you have a cleaner clean room, and you're starting with a much better chance to be successful.

But in fact we have achieved the quality, and last month we achieved a milestone in that Hillsboro came up with a manufacturing process that improved the yield on the production line.

Fujitsu's philosophy is that the process has to be the same here and in Japan, so if it was good here, it ought to be good in Japan. We had to do a 1500-unit test, to prove out that the reliability and the yield of this process was better. After that three-month effort, Fujitsu agreed, and now that process has been adopted at our sister factory in Japan. This is the first manufacturing process invented in the US that has been transported.

Those are tangible examples that there's no magic—there's a lot of hard work, and if you talk to the people, they will tell you that we learned a lot from Fujitsu. In fact, we imported a lot of their manufacturing know-how and techniques and process. It's not just a cliché; I really believe it's true, that the Japanese as a culture, as a country, have invested more and put more emphasis on manufacturing than we typically do here in the United States.

In Fujitsu Japan, the manufacturing engineer is king. They actually promote people from design engineering to either manufacturing or test engineering. Whereas here, in most cases, manufacturing is considered a second-class citizen; we put up on a pedestal the guru who's the inventor in the lab, the genius, and he's got this idea and he throws it over the wall and says, "Okay, you guys build it." In Japan, the guru is the manufacturing guy, and in fact the manufacturing engineer sets the design rules. The design engineer has to get the approval of the manufacturing engineer that this can be made. Japan feels that if it can't be made reliably, why design it?

So everything is done from an integrated design and manufacturing concept, and their testing philosophy and their process philosophy is one that we've implemented here. For example, in Fujitsu's production line in Japan, and the same in Hillsboro, if there's an adjustment to be made, the next person on the line will check the adjustment. So right away you find out if somebody made a mistake, and you correct it, and then he tells his co-worker, "Hey, you better change this thing," and they have their quality circles and workgroups. That way you don't wait till the end of the line, because that's the worst place to catch failures; after all, you've spent all this time. You stop the line, you figure out what's going on. These are examples of the benefit of the cross-cultural approach.

What Fujitsu products fall under the umbrella of the Computer Products Group?

Fujitsu's an \$18 billion company, and there's roughly three broad product groups in Japan. One's called the Computer Systems group—the CPUs, I/O, peripheral equipment, from supercomputers to personal computers,

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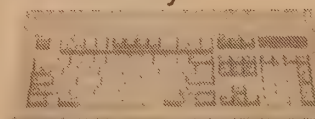
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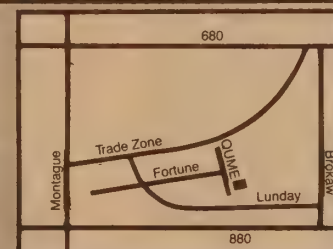
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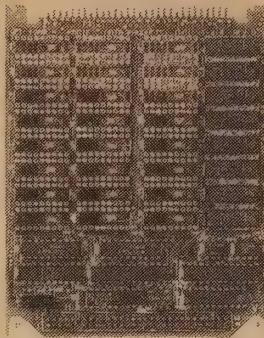
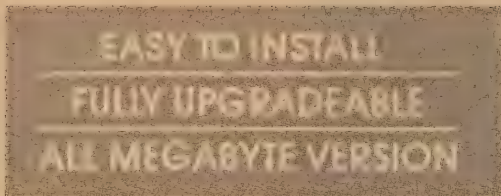
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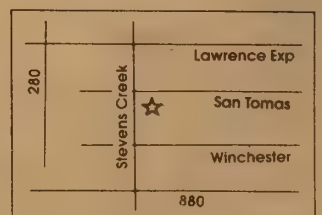
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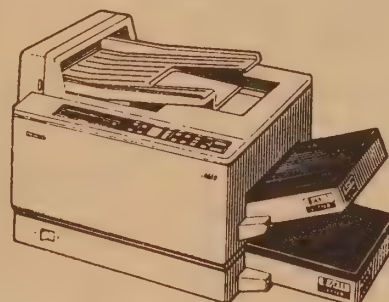
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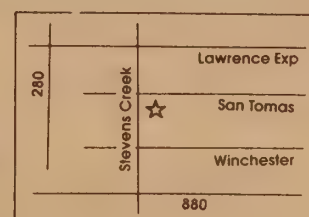
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"When we opened the Hillsboro plant, everybody was very happy that we were building Eagle disk drives in Hillsboro, but



then they said, 'But I want mine from Japan.' It took almost a year before our customers really fully had the confidence."

disk drives, tape drives—the information processing group.

Do they make the SPARC chips?

No, the SPARC chips are made by the semiconductor group. If that SPARC chip is used in a CPU in Japan, then the CPU group would get it. The information processing group is 2/3 of the \$18 billion.

A second group is telecommunications, which is how Fujitsu started in 1935, as the equivalent of Western Electric to AT&T, building telecommunications equipment after a big earthquake leveled Japan. That's about 15% of the company.

And then the third group is the semiconductor group, which is gate arrays, chips, DRAMs, memory chips, and so on. That's about 15% of the company.

In the United States we have two subsidiaries. One is Fujitsu America, and we correspond to two of the groups, telecommunications and the computer group; in Fujitsu America, there are two big divisions, telecommunications, headed by Mr. Dodo who's president of that group, and the computer products group, headed by Norm Petersen, who's president of that group.

And then our other subsidiary, Fujitsu Microelectronics, five miles down the road in Santa Clara, handles the Semiconductor equivalent. They've opened a factory in Gresham, Oregon, which is 25 miles from our Hillsboro factory, to make one-megabit DRAM chips and ASICs.

Combined together, we're maybe \$2 billion, something like that.

Now in the Computer Products group, because Amdahl markets Fujitsu's CPUs here in the US, and Fujitsu is an equity investor in Amdahl and not a managing partner, we at Fujitsu America don't really market Fujitsu CPUs.

Amdahl is really the outlet for CPUs in the United States, and Amdahl only markets large CPUs. Computer Products for us really means disk drives, tape drives, printers, I/O devices, printed wiring boards, modems, data communications equipment—these are products that we offer for sale to our customers on an OEM and distribution basis.

What was behind the decision to let Amdahl market the Fujitsu CPUs here, and have Fujitsu America concentrate on the peripherals?

Well, the Amdahl deal was much prior to the establishment of Fujitsu in the United States. Fujitsu America was incorporated in 1979. In 1979 it was just a liaison office trying to sell one or two products. Whereas the Amdahl relationship goes back to the mid-1970s, when Gene Amdahl ran out of money and the only place he could get it was Japan. Fujitsu provided Amdahl with an additional \$2 million just as an equity investor, and then ended up supplying chips and boards and finally CPUs. What Amdahl would do is make them IBM [mainframe] compatible, so they would use the Fujitsu hardware, and their value added was true IBM compatibility, because Fujitsu's CPUs in Japan are not 100% IBM compatible.

And then the Heizer Corporation was liquidating its investment in Amdahl; and Fujitsu, just to protect their investment, ended up buying Heizer's share just as a defensive posture, but then signed a ten-year agreement limiting its ownership to 49.5%.

Amdahl is truly an independent company, and Fujitsu's just an equity investor, but obviously there's a close relationship because they cooperate and mutually design CPUs; in fact now Fujitsu is remarketing Amdahl IBM-compatible CPUs in Japan. So it's kind of gone the other way.

Fujitsu doesn't seem to have seen much need to get into PC-level computing in the US. Unlike, say, Toshiba, which is a key laptop vendor.

In Japan, Fujitsu is number one. In 1979 or '80, Fujitsu passed up IBM; to my knowledge, it's the only country in the world where IBM isn't number one. IBM sent 400 engineers over there to go fix that, and rapidly dropped to number three. (laughs) Because that isn't how you go fix the problem in Japan.

NEC is number two in Japan, but NEC is number one in personal computers; Fujitsu's number one overall, but number two in personal computers.

Unfortunately, Fujitsu had a false start here in the US. When I came here, Fujitsu was making a big push into the PC business, but they forgot the part that you've got to get the software compatible. It wasn't 100% compatible, so *dBASE III* didn't run and *Lotus* didn't run, so it was not a successful product here in the US. So Fujitsu decided to reorient it to vertical markets; one of our subsidiaries, Fujitsu Microsystems of America, is marketing Fujitsu's processors, but oriented to the Pick-based market as a vertical market. Fujitsu views Pick as one of the alternative operating systems like UNIX, and the reason they invested heavily in it is that Pick has a large following; it's got a lot of advantages in transaction processing and database processing and retail. Fujitsu views UNIX and Pick as two alternative operating systems for the future.

Fujitsu has been here in one form or another since 1968, and Fujitsu America in something close to its present form since 1979. The world has changed a lot in that time; how has Fujitsu adapted? It seems, for instance, to have started out with an exclusively OEM strategy and evolved into something more diverse.

I can speak about the last five and a half years. My boss Norm Petersen joined about nine months before I did. Since that time his group has grown by a factor of ten. So we've enjoyed a very rapid growth.

We did start out, as you mention, by offering our Eagle disk drives and some 14" disk drives on an OEM basis. We opened a sales office here in California, and hired about a dozen manufacturers' reps around the country to pursue OEMs large and small. When I came here we had 13 sales people, and now we've tripled the sales force. As we put in direct offices, our manufacturers' reps became stocking and what we called high-tech distributors; we called on large OEMs and let our high-tech reps call on the small OEMs as an extension of our sales force—providing, many times, warranty support and service support.

Then we expanded the line to tape drives, and then we started the printer business at roughly the same time as we started the tape drives. When we got into the printer business, we found that that was primarily an aftermarket product, more of a distribution product. For example, Sun Microsystems, one of our very large OEMs, doesn't really take printers. They just qualify them, but they're not in the business of incorporating printers as part of their offering. And when you go buy a PC, many times you don't even buy a printer.

So we really decided to start our distribution business in a bigger way when we started taking our printers into the US market. Fujitsu has been in the printer business for 25 years, and is one of the broadest line suppliers. We started first with a daisywheel product, then we brought a 9-wire, then an 24-wire, and now we have the broadest line of printer products in the industry, just like we have the broadest line of disk drive products. If you take our disks,

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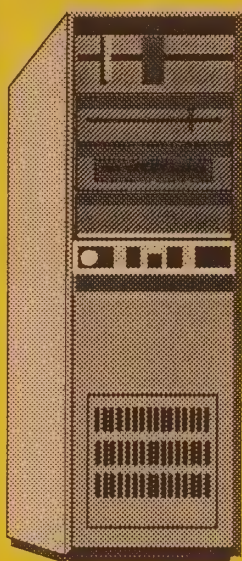
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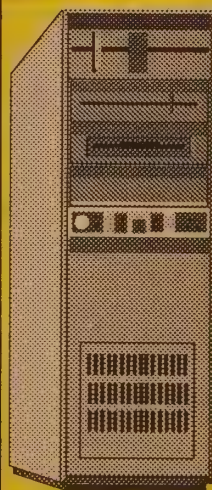
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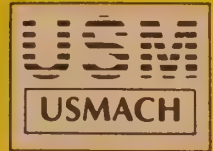
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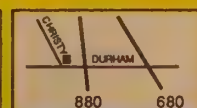
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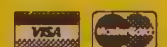


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"There's a lot of transition going on in the computer business; a lot of our disk drive competitors are going through tough times and consolidating. Yet our business has continued to increase."

tapes, and printers, there's no company that could provide the same depth of products. We've got disk drives—14", 8", 5 1/4", 3 1/2"—tape drives, big tapes, little tapes, 9-wire printers, 24-wire printers, band printers, laser printers from five-page-a-minute to 12-, 18-, 22-, 50-page-a-minute. Scanners—an extremely broad line.

But we found that we had to broaden the distribution, and for the first couple of years we had some fits and starts. We ended up with 40-something distributors, some regional, some national, some vertical, some two-tier, some one-tier. And about two years ago we decided we wanted to concentrate more on building the distribution business, as a way, quite frankly, to promote the Fujitsu brand name. Because one of the problems we were suffering, even a little bit on the OEM end with some of the new startup companies, was a lack of recognition of who Fujitsu was. You say "Fujitsu" in Japan, and it is the equivalent of saying "IBM." Everybody knows it; it's revered as the number-one company; everybody wants to go to work there out of school, and so on. You say "Fujitsu" in the United States, and it's, "Is it a film company? Fuji Film?" Which it's not.

The costs to develop a brand-name awareness—if we had a personal computer like an Epson, or a Toshiba, or if we were in the consumer electronics business, like Hitachi or Panasonic or Sony, we'd have a much higher brand-name recognition. So we felt, strategically, that by expanding the distribution business, it will get the Fujitsu label out there in front of people much more.

So two years ago we brought in some people who really understood the distribution business; we made some painful decisions at that time to cancel 12 or 14 single-tier distributors and concentrate on the two-tier market. So we're primarily a two-tier based distribution. We took a glitch for a while—a few-million-dollar drop—but then we ended up last year growing our distribution business

another 40%.

We brought in a person who capitalized on the fact that we have a nationwide service organization, Fujitsu Customer Service, with 185 service outlets out there. We put together a TIPS program—Technical Information Program, cards, 800 numbers—we put together a Service Provider Program to help our distributors train our dealers.

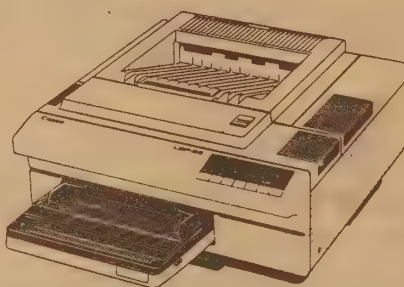
We found out, frankly, that some of the dealers were not carrying our product because they felt that they couldn't get good service and support from our distributor, and they didn't want to be embarrassed when somebody came in and asked about a product and they didn't know how to demo it, or didn't have spare parts. So we have a service provider program, first, second, and third level, where we can help our distributors train the dealers.

And by doing that, we ended up expanding our distribution base, because this is what distributors want—help from the vendors. And that expanded the dealer base. We've grown our advertising and PR and co-op, and put a lot of programs in to expand that distribution. So as a strategy, we're focusing on growing the distribution business, probably at a faster rate than the OEM, although the OEM is continuing to grow.

There's a lot of transition going on in the computer business; a lot of our disk drive competitors are going through tough times and consolidating. Yet our business has continued to increase, even on the low end, at which we were typically not very competitive because of the dollar-yen problem, and I suspect it's for one of two reasons. One, people are nervous about potential consolidation and who they're going to be dealing with in the next five years, and they want a stable vendor that's going to be around. And number two, people are finding that quality counts, even on the low end.

My perception is that the mainframe business ten years ago became the minicomputer business; people went to

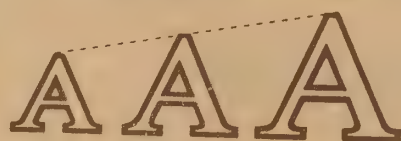
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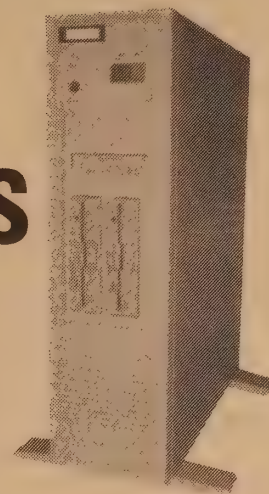
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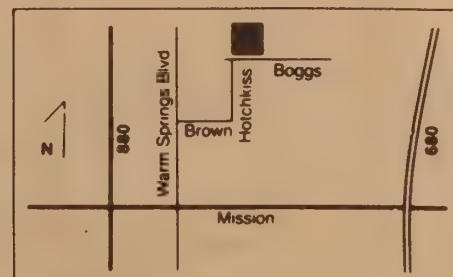
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"We haven't lowered our price, and yet our volume has picked up. It's one of two things—either they've had a quality problem or they're nervous about source of supply. You can give an extended warranty...but if you're not going to be here in five years to back it up, it doesn't mean anything."

distributed data processing, and all of a sudden you wanted everything in a minicomputer that you got in a mainframe, and now there's a transition to workstations and networks and PC-based distributed processing. If you have a PC, and it's just yourself and you have a failure, it's okay, but if you have a Novell server—we have a Novell network here, and there's 45 of us on the network. If that disk drive goes down, 45 people are out of commission.

Fujitsu's always been on the high end, being in the large scale mainframe world. We've had the Cadillac drive, and people have said it's overdesigned for the market, and our distributors have had a hard time with it, because if you've got a lot of different products to sell it's always easier to sell the cheaper product. How do you convince people it's worth spending an extra 150 bucks?

Word of mouth spreads pretty fast, and our business on the Macintosh is going crazy right now, because Jasmine and LaCie and people like that have announced our products, and the perceived and real Fujitsu quality means something. With a lot of the older products—the 86 Mb, the 172, and the 380 Mb are not leading edge any more, they're two or three years old and were always high-priced—I didn't order enough, because now people are coming back and buying them. Six months ago, they said, "If you can't meet this price, we don't want any more." We said, "We'd love to, but we can't. We have to make a profit too, and it has to be a win-win situation. We respect your decision, and maybe we'll catch you on the next product."

And now they come back and say, "Okay, I really want some of those..." (laughs) So we haven't lowered our price, and yet our volume has substantially picked up. To me it's one of two things—either they've had a quality problem or they're nervous about source of supply. You can give an extended warranty or whatever you want, but if you're not going to be here in five years to back it up, it doesn't really mean anything.

Do you have much problem with Japan-bashing out there in the American marketplace?

That's the first reaction; it's difficult for a lot of the employees to go to a cocktail party: "Oh, you work for a Japanese company?" But as you explain real life—we are adding employment here, making products here, designing products here, manufacturing here, servicing and supporting here, with 95% American staff...

What I like to point out is that even some employees tend to get frustrated working with a Japanese company, because it does have pluses and minuses. But in the venture capital world, nobody's investing in disk drive companies today, because there's a 20% or so gross margin, and you're not going to get any money—even distributors need more than that. If you want money, and you're in the disk drive business, there's only one place to go right now, and that's Japan. So Quantum is going to MKE, and Priam is going to Matsushita, and Maxtor is going to Kubota, and I don't know who some of the others will go to. The point is that you will probably be either working with or funded by or cooperating with a Japanese company. The benefit we have is at least we have a parent-subsidiary relationship—we're part of the family, not some outsider.

You're right—in some parts of the country you do tend to run into that. But I would say that Japan-bashing today isn't so much Japan-bashing, as a concern over trade friction that may cause a restriction in the source of supply. I don't think there's any hesitancy by any company anywhere to buy; if you look at the IBM PC, more than half of it is made in Japan. Even the most American of American companies, I guarantee you, are buying some chips, memory, DRAM—something from Japan. Even Intel—two or three of their top customers are in Japan. The trade barriers go down when you talk about real economics, and quality, and so on.

The real concern among our customers is in the area of

An Open Letter to All Computer Users,

Today, there are numerous health and safety issues surrounding Video Display Terminal (VDT) usage. The severity of problems and concerns has led to in-depth studies by private entities, research by major medical institutions, and hearings by both state and federal agencies.

They expressed opinions ranging from "No Proof, No Problem" to "Birth Defects caused by radiation exposure."

There are conclusive facts that should create concern among computer users.

Our objective is to provide the recreational and professional computer user information and preventive technology that will help to avoid damages induced by unhealthy computer usage.

Our main focus is to protect the user from:

- Eyestrain problems
- Muscular-Skeleton Disorders such as Carpal-Tunnel Syndrome
- Stress
- Psychological Problems

The cost of these preventive products can be cost justified by noticeable increase in People Productivity, Lower Absenteeism, Increased Morale and will help eliminate physical damages to the body.

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Software

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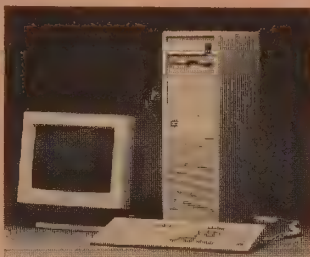
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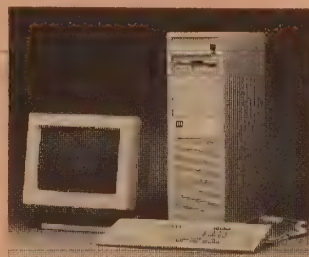


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- 80287 coprocessor socket
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- LED indicators
- 200W UL power supply
- One year warranty
- Vertical case add \$95



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STANDARD SYSTEM	\$980	\$1200	\$1430	\$1530
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1:1 INTERLEAVE CONTROLLER OPTION: \$50.00

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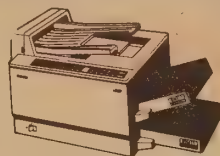
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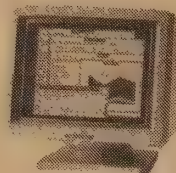
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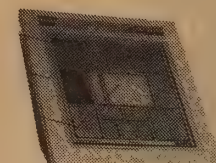
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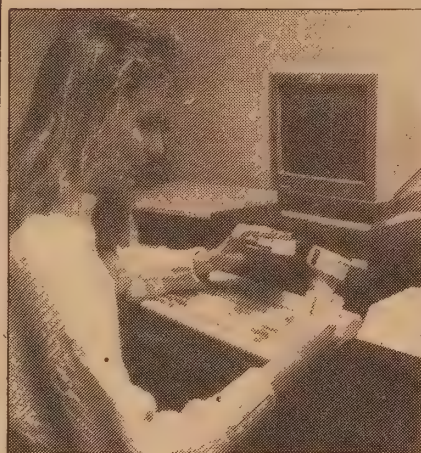


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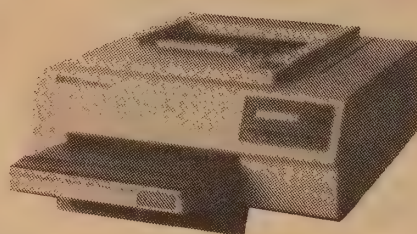
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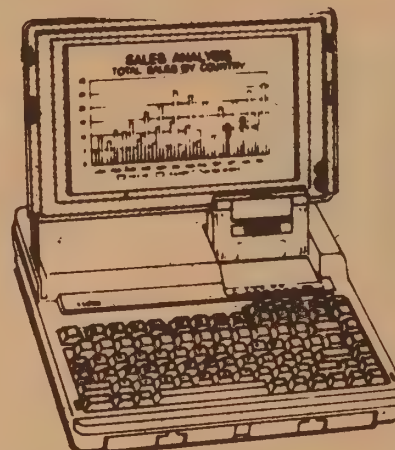
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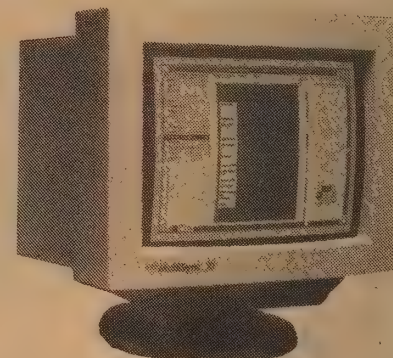
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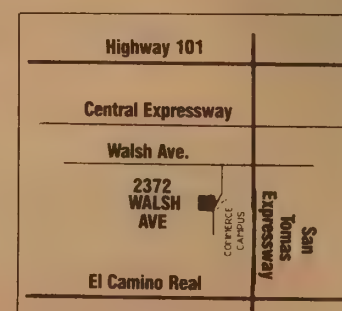
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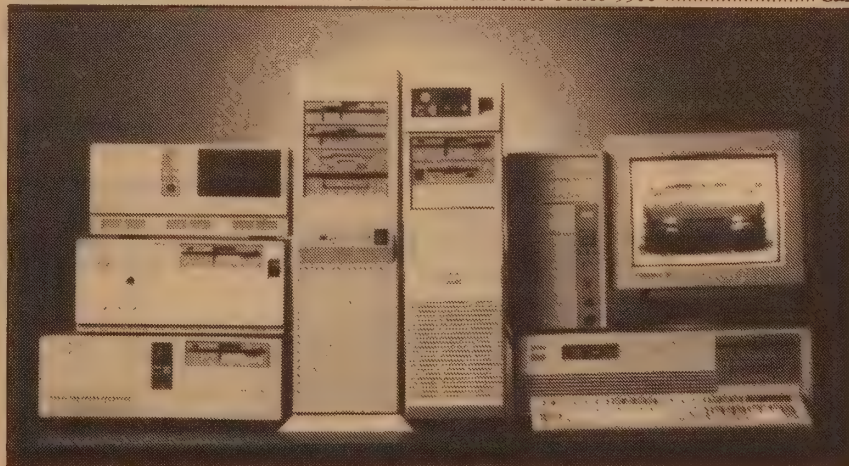
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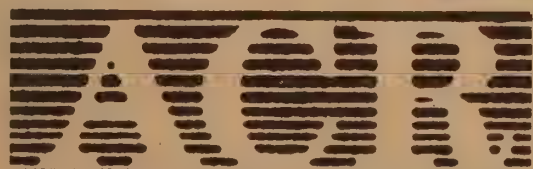


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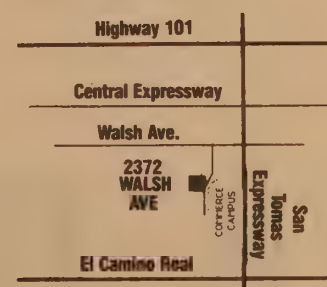
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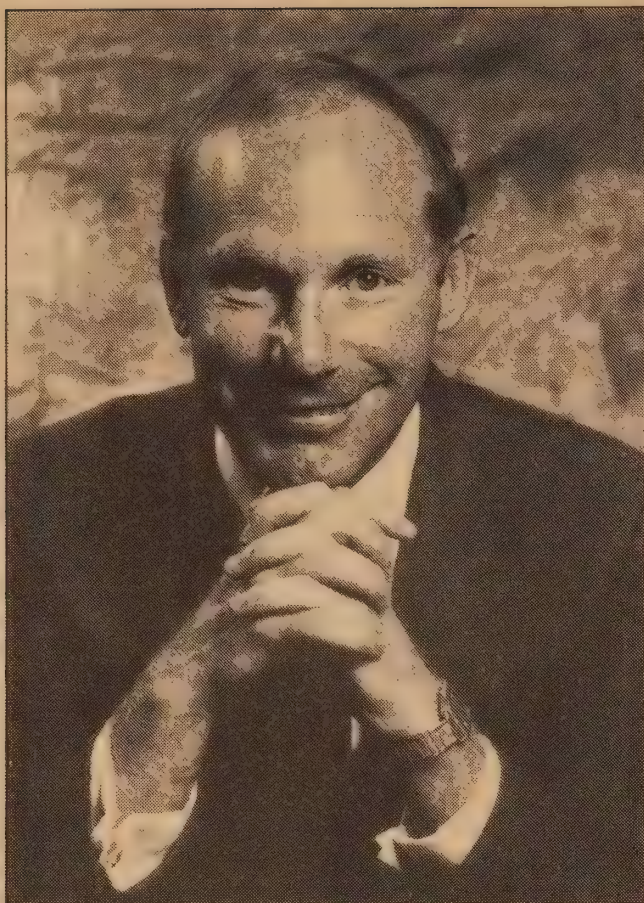
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trade friction, and is there something that could happen politically to cause a restriction in the source of supply?

ted to a multimillion-dollar semiconductor wafer facility in the United Kingdom.



Like the Toshiba flap.

Right. And there we have a good answer, because we're making them on this side of the ocean. Norm Petersen was kidding George Scalise [president and CEO of Maxtor] a few months ago, when as part of the whole trade sanction that was imposed on Japan, there was a proposed duty that was going to be placed on products manufactured in Hong Kong and Taiwan and Korea and so on. George Scalise got nine American companies to band together to say, "Please don't have any duty on products coming from Japan, or the Asian companies," because they would've had to pay duty. So we didn't have to do any lobbying; we had these American companies that are all offshore doing it for us. (laughs) It's truly a global world.

Fujitsu's view of the world is, if you look at 1992, the GNP of Europe will be bigger than that of any other economic segment; the United States is second, and Japan is third.

Yet three-fourths of Fujitsu's revenues come from Japan. So Fujitsu is rapidly globalizing. There's 15 manufacturing plants outside of Japan now. October 23 we announce the opening of our plant in Ireland; we've got a huge plant in Spain; Fujitsu's commit-

So that's how you're dealing with 1992, which I gather is a serious concern in Japan?

That's right. In Fujitsu's view, there's three basic economic sectors, and you have to be able to engineer, design, and manufacture in all three of those sectors. We may end up marketing a product that was designed in Europe, and built in Europe, and exported to the United States, and Europe might end up marketing a product that was designed in America and built in Hillsboro. No company, even IBM, is going to have the luxury of designing every single product in Europe, every single product in Japan, and every single product in the United States. You're going to have to specialize.

We think that probably the way it'll work out is that if Fujitsu in total is manufacturing x percentage of their total products in Europe, that will meet the European Community guidelines, and probably the same here in America.

Do you see getting into any completely different areas?

We are constantly amazed at the breadth of technology that Fujitsu has and the limited scope of products that we're offering. We're a little reluctant to spread ourselves too thin.

For instance, Fujitsu's got a great voice communications product; being big in the telecommunications business, and being big in the digital signal processors—Fujitsu has cellular telephones we market in the US—they've come out with a voice recording technology that many believe will be the next enabling technology for the next ten years. Just like PCs were a tremendous enabling technology to bring computers to the masses, the next technology—to bring computers to the executives, who are still keyboard-illiterate—will be voice. You'll dictate, and there'll be

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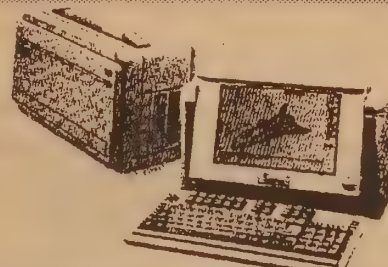
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"If you're in the disk drive business, you will probably be either working with or funded by or cooperating with a Japanese company. The benefit we have is at least we have a parent-subsidiary relationship—we're part of the family, not some outsider."

user-friendly commands—"I want my mail." You'll be able to read and talk. It may take ten years to do that, but with artificial intelligence and fuzzy logic and voice... these are technologies that Fujitsu has.

If you look at Fujitsu as a company, they are very well positioned—a few months ago, the *Wall Street Journal*, in its centennial issue, came out with an article that talked about the next century. They listed 56 companies that they predicted would be in business 100 years from now. Fujitsu was one of those companies—the only Japanese electronic company in the lineup.

I think IBM regards Fujitsu as *the* competitor, just like Fujitsu views IBM as *the* competitor. Fujitsu's well-positioned because they have the basic semiconductor technology—SPARC chips and DRAM and all these things—and in addition to that, this HEMT—High Energy Mobile Transistor, and RHET, Resonant Hot Electron Tunneling technology. Fujitsu has gallium arsenide. We're investing a lot in our own software technology and fifth-generation artificial intelligence. Those are the technologies that you need to go into the next hundred years.

How active is Fujitsu in looking for innovative American technology to acquire?

This is something that Fujitsu is becoming much more active in now. We are actively looking at partnerships and joint ventures and strategic alliances.

For example, Fujitsu invested about 39% in Poqet Computer; Poqet will be in our booth at COMDEX, and Fujitsu will take that technology and Kanji-ize it and offer it in the Japan market. And otherwise just be an equity investor in the US market, like with Amdahl.

Fujitsu's a 10% investor in a company called Anamartic, that will be announcing a wafer-scale memory product at COMDEX; it's an English company, one of Clive Sinclair's

spinout companies. So I think Fujitsu is aggressively, in all parts of the world, trying to work with companies to push the envelope out and work together on technology.

I think the relationship with Sun is a perfect example of that. We started with Sun—when I joined here five and a half years ago, Sun was a startup company with less than 100 people, and Scott McNealy was maybe 28 or 29. I remember going over and meeting with him, and he said, "I need the *best* price, because we're going to have the *lowest-cost* workstation..."

At that time, Apollo was a couple hundred million dollars, and who would have thought that they could compete with Apollo, who owned the world? And now Sun's a billion plus, and now Apollo's H-P.

We said, "Okay, we'll work with you, Sun, and we can give you the lowest prices if you take all your peripherals from us and sign a requirements clause. That's one way we can legally give you our most-favored-nation clause, because obviously your volumes wouldn't justify it. But if, to start, you could be exclusively Fujitsu peripherals..."

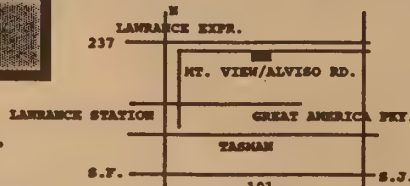
That's how they started out, and we worked with them. They needed quick delivery, and of course the Eagle helped their business, too. And then as they grew, they'd say, "Well, gee, we're buying a lot of Fujitsu products, \$25-50 million worth of disk drives, why doesn't Fujitsu buy any of our workstations?"

So we used to sponsor, twice a year, executive seminars in Japan, where executives could go see our technology and future products, and go meet with Fujitsu executives. We set up meetings for Scott McNealy's people to present their workstation. It took about 18 months of steady effort, but last year Fujitsu signed what the press said will be a \$200 million OEM agreement to remarket Sun Microsystems workstations under the Fujitsu label in Japan.

So truly this has become a two-way business relationship. ■

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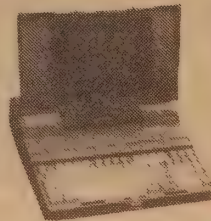
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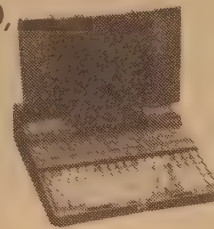
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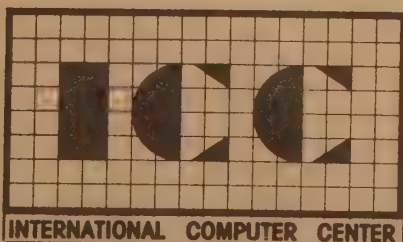
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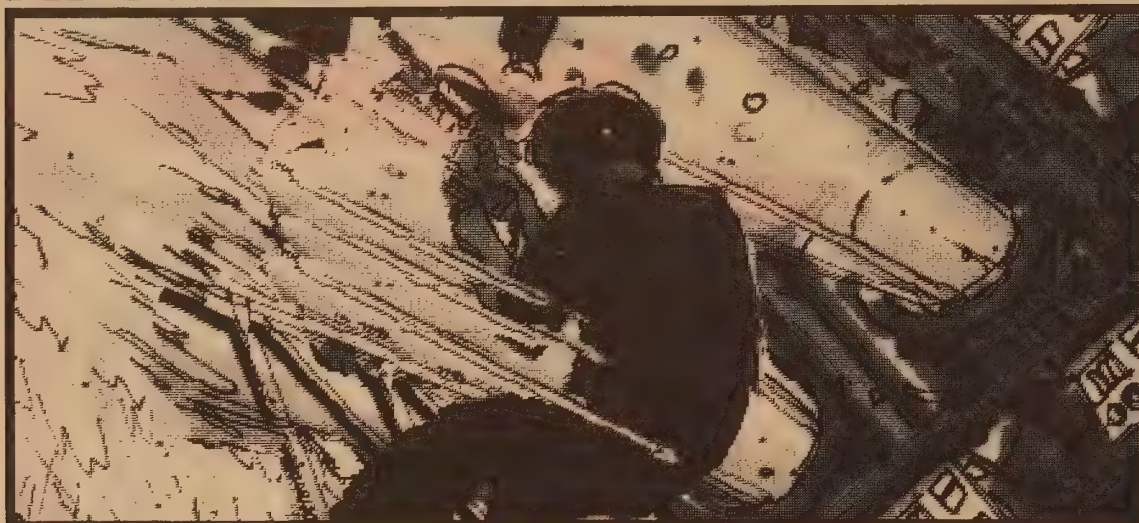
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FX-14.1



FX-14.2



The Mac II, in conjunction with scanners and software, was used to create storyboards for "The Abyss."

FX-14.3



Mac In Film Production: First Results

By Richard P. Greenfield

The summer of 1989 will be noted not only as the most financially profitable in Hollywood history, it will also be noted for the release of the first films that used the Mac extensively in various production tasks outside of the established areas of scriptwriting, budgeting, and scheduling.

Two of the summer's most ambitious releases, *Star Trek V* and *The Abyss*, used and attempted to use Macs for a variety of tasks involving special effects planning, execution, and production design. The experience of the crews on these two films highlights strengths and weaknesses and points out directions of future development if the Mac is really to become a totally integrated production tool.

The Abyss

Mike Backes was the Macintosh consultant for *The Abyss*. A former production executive at Vestron Pictures, he is currently working on a techno-thriller script and serving as a consultant to the Advanced Technology Group at Apple. Backes had been a Mac user for five years before he was approached by *Abyss* director-writer Jim Cameron.

Cameron hired Backes in December 1987 to work on visuals for 2-D storyboards and 3-D animation. "We got an alpha copy of *Super 3-D* and took Ron Cobb's drawings for *Flatbed* [the minisub] and the *USS Montana*; we made models in *Super 3-D* and did some animations with it," Backes recalls. "That stage was kind of rough...the version of *Super 3-D* had no real in-between capability; it was difficult to define a motion path. All that had to be done by hand using *Excel*."

Storyboards for *Abyss* were scanned in, using an alpha copy of *Digital Darkroom* and a Microtek scanner. *PixelPaint* was used to give shading to break the storyboards up into categories. "We had 'wet for wet' pictures, those where the underwater photography was done of underwater miniatures, and 'dry for wet' where we had an underwater look." At this point, Backes was able to obtain a printer from Tektronix which allowed clear storyboards to be printed for all special effects teams.

Says Backes: "The Mac is a phenomenal computer for screenwriting, budgeting, and breaking down a script, but it is just now becoming an inexpensive visualization tool. When we first started with the Mac II, it was an expensive visualization tool. Now the hardware's cheaper. The next movie I do with a Mac II visualization base will be very cost-effective."

Van Ling worked with Backes and



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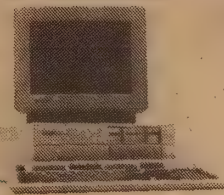
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MOUNTAIN VIEW



Using the Mac as a visualization tool allowed the relatively inexpensive creation of detailed storyboards.

as director Cameron's assistant on the film. Ling processed all the storyboards. "The trick is to see what the technology can do, see if you can push the envelope back a bit, do some exploring," he says.

Star Trek V

Ralph Winter, executive producer of *Star Trek V*, and his crew also used the Mac, but with mixed results, notably in special effects and production design.

"In special effects," he recalls, "we were able to use *VideoWorks II* somewhat successfully to give life to otherwise static storyboards; that process showed us we had one shot too many at one point, and at \$25,000 per shot it paid for itself.

"Moving beyond that, however, it was not easy to get things to life, and what we had wasn't true 3-D. It couldn't really show us all the perspectives when the shuttle was entering the *Enterprise* landing bay." The sequence required Winter to design a shot so that only the rear part of the landing bay had to be built, rather than the whole model.

Lynda Weinman, who did the animated storyboards for Winter, adds, "Another thing we ran across was that the animations, even with the *VideoWorks Accelerator*, were not in real time."

Production design was another problem area for the *Star Trek V* crew. Explains Winter: "For those opening scenes, we went to Yosemite and shot Bill Shatner at a place called Tunnel View. Then we found a spot at one of the parking lots where we had a beautiful view of El Capitan and Half Dome, and we wanted to build this fake wall there, in the parking lot, a 20' x 40' wall.

"We would like to have used some kind of 3-D software to try out field of view, width of lens, that kind of thing, so that we would know to build a 17' by 38' wall, or something like that. But the software that was available to us wasn't workable by me alone. To really get it rolling you have to hire a wizard, and then the studio comes back with 'You want to do what? We'll send you some wiz-

ard craftsmen and they'll build you a wall however and wherever you want it.'"

Despite his dissatisfaction with what could not be accomplished, Winter says that in his next film he'll see if anything better is available. "What I would really like, what I assume everyone in the business

would really like, would be some way to do the previews, and spit them onto film with appropriate commands to manipulate real-life cameras and models."

What's Needed

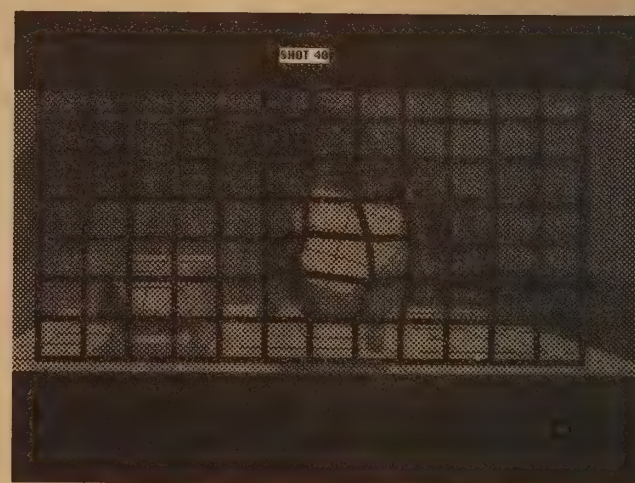
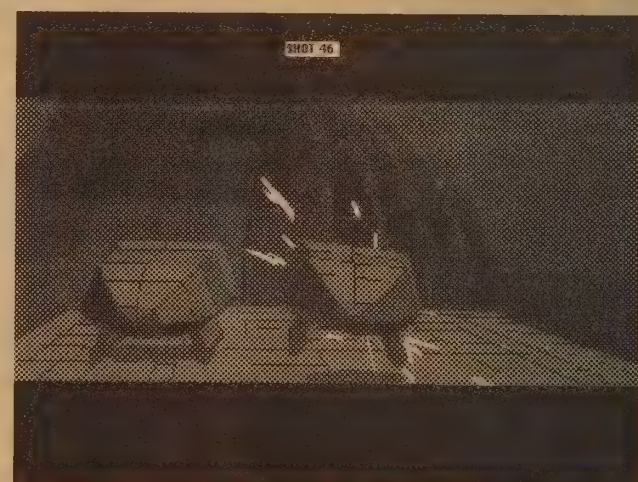
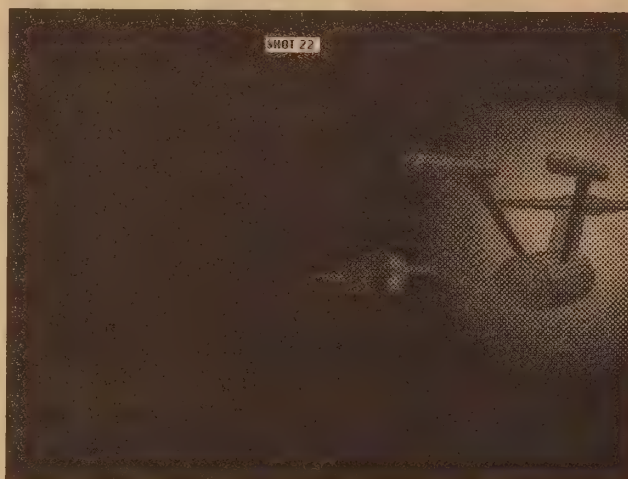
Ron Cobb, who did the initial renderings for *The Abyss* and who has since

done work (some of it on the Mac) for the upcoming *Total Recall*, agrees with Winter. "We really are still pushing the edge; there are lots of things we need."

Despite the problems encountered, there was general agreement among these film professionals that use of the Mac had pushed aspects of production work forward. And, in relation to the expressed wish list, the first installment may come before the end of 1989. Programmer David Smith is working on a 3-D modeling program called *Walk-Through* which will run real time and support 256 colors. ■

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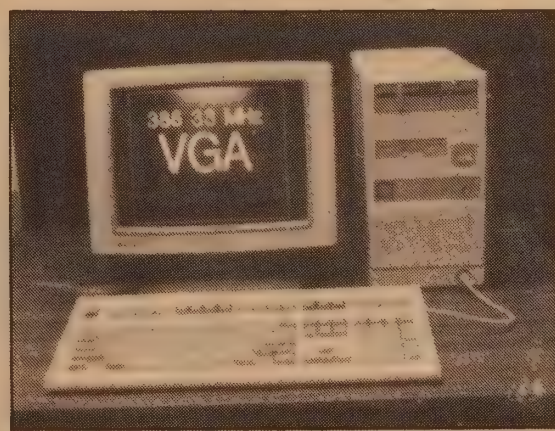
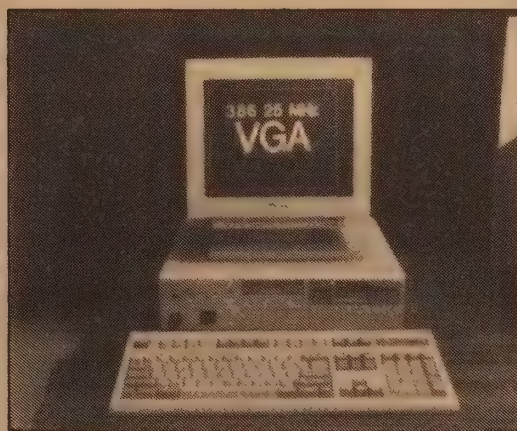
Using *Video Works II*, executive producer Ralph Winter was able to create animated storyboards for special effects.



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Updating An AT-Class Computer

By Ed Kahn

Many AT owners are now asking if it's time to trade in their workhorse for an 80386-based machine, or whether there are still more good years of service left in the old box.

With the introduction of the AT in 1984, IBM launched the computer that has become the backbone of the business world. Since then, clones and add-on products for the AT and its compatibles have flooded the marketplace.

This new line brought a number of advances over the older XT family of computers. The AT incorporated an 80286 processor, which provided significantly faster operation, and introduced the high density 1.2 Mb drive. Despite the number of newer and faster computers, there are literally millions of AT-class computers in operation.

Since the introduction of that landmark product, however, there has been a flood of larger, more complex programs that have put increased demands on the AT. The result is that many AT owners are now asking if it's time to trade in their workhorse for an 80386-based machine, or whether there are still more good years of service left in the old box.

Buyers would undoubtedly choose to outfit their AT-class computers differently if they were starting from scratch today. This article will address several major concerns that make AT owners think about moving up to a newer and faster unit.

The first consideration is the disk drives themselves. The new computers come with dual density drives in your choice of 5 1/4" and/or 3 1/2" format. A second area of concern is graphics standards. Many of the older computers came with either monochrome, CGA, or EGA graphics systems. New units utilize, for the most part, the clearer VGA graphics standard. A third area of concern is the 640 K barrier. And finally, more powerful interfaces and better keyboards, faster modems, and newer versions of DOS are available today.

Floppy Drives

Drives have advanced significantly since the first ATs. The original 1.2 Mb drive that came with the AT would read both high density and 360 K disks, but would write only to the high density floppies. For that reason, the original ATs came with both a standard 360 K and a high density 1.2 Mb drive.

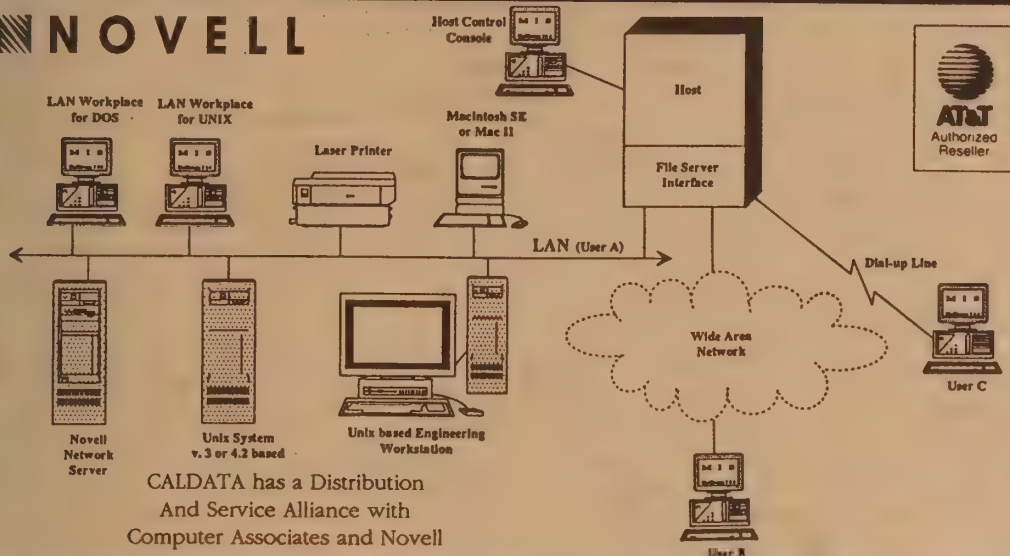
Today, however, there are dual density drives that will permit you to read and write both of the densities

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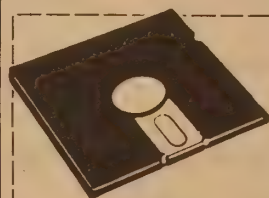
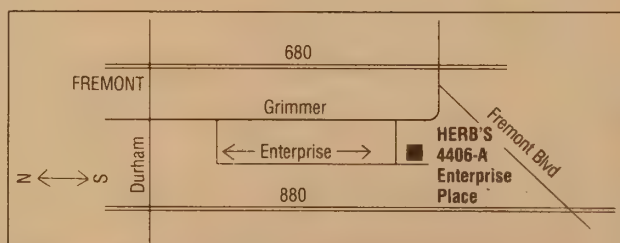
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available on 5 1/4" drives. So today there is no need for two 5 1/4" drives, as one dual density model will do the trick.

The other change that has taken place in floppies since the introduction of the AT is the emergence of 3 1/2" disks as a new standard. IBM moved away from the 5 1/4" disks when they introduced the PS/2 line a couple of years ago. This, plus the fact that most laptop computers are using the smaller disks, has made the 3 1/2" disks an increasingly prevalent standard. For this reason, many users are finding that they would like to have drives in both the 3 1/2" and 5 1/4" format on their system.

The smaller disks also come in both a standard density of 720 K and a double density of 1.4 Mb. If you are upgrading your floppy drives, you might consider replacing your drives so that you can use both sizes and both densities. The new drives will cost about \$200 for both. You should be able to use the same controller as you had on the original AT. You will, however, need to upgrade to at least DOS 3.3 in order to use the 1.4 Mb 3 1/2" disks.

If you are handy, installing new drives is not difficult. If you don't feel comfortable making the change, you can easily have both drives installed by a store that sells you the replacement units.

VGA Graphics

Another major area of improvement is in graphics standards. The original IBM graphics standard, CGA, is pretty much a thing of the past for users who install color monitors today. The earlier standard is simply too difficult to view for long periods of time.

While many portables still utilize this standard for external monitors, anyone who is upgrading an older desktop computer with a new graphics card and monitor should move directly to the VGA standard. This will involve the purchase of a new graphics adapter card and a monitor that will accommodate this higher resolution.

There are a number of products in both of these categories that will do the job. I really like the ATI VGA Wonder (street price about \$300) graphics adapter card. During the last few years ATI has made a name for itself through the introduction of excellent products at reasonable prices. This card is unique in that it will work not only with any software and any monitor, but it also has a mouse port and comes with a Microsoft compatible mouse. ATI figures that anyone who uses graphics will need a mouse, so why not include it? This saves an expansion slot or a serial port.

While many portables still utilize the CGA standard for external monitors, anyone who is upgrading an older desktop computer with a new graphics card and monitor should move directly to the VGA standard.

While the card will work with any software and any monitor, it obviously will not deliver resolution beyond what your monitor can support. It will, however, eliminate any hardware or software compatibility problems. This card is really a delight, and is so simple that all you have to do is plug it into a slot in the computer and attach the monitor to the port on the card. The card will automatically sense what kind of monitor you have and configure itself. There are no switches or jumpers to set.

It doesn't get simpler than this, but nevertheless the documentation is complete, and tells you how to get the maximum performance out of the card with specific software. There are drivers, for instance, for Lotus, that will allow you to view 132 columns on the screen.

The least expensive way to move up to VGA is to use a VGA card and a VGA monitor. I think, however, that for many users it is worth the extra money to buy a multiscan monitor; they are designed to work with different graphics standards, and when the next one comes along the monitor will probably still work. I am currently using a Mitsubishi Diamond Scan 14" monitor that boasts auto-tracking. This monitor will work with CGA, EGA, PS/2, VGA, and even Apple graphics standards. Had I purchased an EGA monitor several years ago, I would now have to abandon it in order to move up to VGA, so in the

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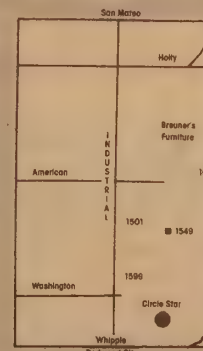
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long run it has been cheaper to buy the more expensive monitor.

On the other hand, there are many bargains in the less versatile monitors, and the display will be the same.

The 640 K Barrier

When the IBM PC came out with the ability to handle up to 640 K, that seemed like a lot. But programs rapidly grew in size, and this limitation soon became a real problem for users and programmers alike. Especially troublesome were large spreadsheets, databases, and graphics-intensive applications.

Over the years, a number of fixes were brought to market to allow programs to draw on additional memory for the smooth operation of programs that simply cannot be contained within the 640 K area. Standards were established and built upon over the years. In order to achieve maximum usefulness, additional memory must conform to the LIM (Lotus-Intel-Microsoft) 4.0 expanded memory specification—the most advanced LIM standard to date. This hardware standard, to which application programs are written, assures that the programs can use this additional memory.

If you have *extended* memory in your system, it does not conform to this standard and will do you little good except for running things like print spoolers, RAM disks, and caches, all designed to speed up operations. In short, extended memory is not an extension beyond the 640 K barrier. This memory will not allow you to run larger programs and will not help in the use of memory resident programs (also known as TSRs for Terminate and Stay Resident); these have become popular because they stay in active memory and are available at the touch of a hot key that calls them up anytime, regardless of which other application is running in the foreground. Popular as these TSR programs are, they compete with application programs for scarce conventional (under 64 K) memory. Larger application programs and the growing number of memory resident programs that we couldn't live without led to the development of LIM (Lotus-Intel-Microsoft) 4.0.

The fringe benefit of this ability to harness more than 640 K is that when coupled with a fast CPU, multitasking—running more than one program at a time—becomes a real possibility. This means that you can run your communications program, and while a file is uploading or downloading, you can move over to your word processor or any other application, and continue work while the download happens in the background. When a favorite bulletin

board is busy, I leave it retrying in the background until the line answers. When I hear the modem or the computer issue its signal that the line has answered, I hit a couple of keys to move back to the communications window. The possibilities are endless.

But the prerequisite to any of this excitement is to have enough memory configured as LIM 4.0 *expanded*—not *extended*—memory. You need more than just memory, however, to make all of this work. You need a memory manager, which is software that tells your computer that there is additional memory available and that it is configured in a specific way.

Installing the driver involves nothing more than copying a file onto your hard disk and adding a line to your config.sys file. The memory managers that unlock all of this power are set up to manage memory configured according to LIM 4.0, which has become the standard to which software developers as well as hardware designers all conform. While the development of this standard did not solve all of the 640 K barrier problems, it went a long way towards stimulating the development of solutions.

So, if you have an AT-class computer with nothing more than the maximum 640 K conventional memory, and want to unlock all of this power, what do you do? There are several options available.

Before making any decisions, it is important to know if you have any extended memory in your system. If you have a big investment in extended memory, you might act differently than if you have only 640 K or less filled out. If you have enough memory, but it simply is not configured to the LIM 4.0 specification, the solution will be different than if you have no additional memory. Starting from scratch, this additional memory most conveniently comes on an add-in board that will slip into an expansion slot of the AT.

These boards will generally hold up to several megabytes of memory. With an expanded memory board, and the driver installed, you will be able to accommodate larger programs, like huge spreadsheets, desktop publishing applications, or CAD applications that are written according to LIM 4.0.

If you have a computer with 1 Mb of memory, this means you have 360K in addition to the basic 640K of conventional memory. Can you use it? If you have a 2 Mb system, is the additional megabyte available? Is it necessary to throw away all of this memory in order to take advantage of LIM 4.0?

Over the years a number of fixes have been brought to market. There are several software packages de-

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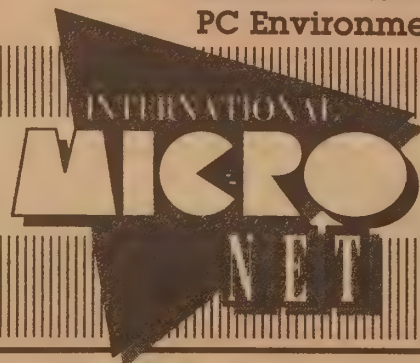
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7. DOS 3.3 is standard. 8. OS/2

Most vendors like to hide the fact that OS/2 is vendor level specific. This means vendors seeking to have OS/2 compatibility have to provide you with their version of OS/2. EVEREX has a version OS/2 available as an option for their machines.

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11. The STEP computer uses a large cache of very high speed static RAM which allows the processor to operate with zero effective wait states. The SRAM cache is implemented via Everex's Advanced Memory Management Architecture which provides higher throughput than is available with caching schemes available on other PC-compatibles.

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RAM on Motherboard	1-4MB	512K-2M	512K-2M	1MB	1-4 MB
HD Interleave	1:1	1:2	1:2	1:2	1:1
Programmable LED	Yes	No	No	No	No
Slots/Drive Bay	8/5	8/5	8/5	3/2	3/2
OS/2 Support	Yes	Yes	Yes	Yes	Yes
Warranty	1yr on-site	1yr carry in	1yr carry in	1yr carry in	1y on site
386 Expandability	Yes	Yes	No	No	No
AMMA Cache	Yes on 28620	No	No	No	No

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signed to convert standard extended memory into expanded memory that conforms to LIM 4.0.

One such product, *Turbo EMS* (\$99), is a software package that claims to be able to make all available memory conform to LIM 4.0. In checking out the product, I found that it did what it claimed to do, which was not entirely what I had hoped it would do. It did configure additional memory as expanded memory. Furthermore, it was even able to use available hard disk space as expanded memory. But that additional memory is slow, because the information must come from the hard disk, rather than memory itself.

If, however, you have a lot of extended memory free, data stored there will be rapidly accessed. The cost of a software emulator is a good deal less than the cost of an add-in board populated with lots of memory. Furthermore, the emulator allows you to still use whatever memory you do have on the system. If your primary purpose is to run a huge program like *Lotus*, then emulators are fine.

If, however, you want to be able to load your system up with TSR programs, you are out of luck. TSR programs must still be loaded into the basic 640 K conventional memory of your computer in order to be able to

The most promising product to investigate is the All Chargecard.

This is a hardware/software solution and works especially well for people who have invested a lot of money in extended memory.

pop up with the touch of a hot key. Extended memory does not conform to LIM 4.0 standards, so it is not possible for this memory to do the same thing as expanded memory. Emulators merely allow non-expanded memory to act like expanded memory in a limited way. The instantaneous nature of switching programs simply does not work at the speed of LIM memory and—equally important—multitasking is not possible.

What this means is that programs loaded outside the 640 K area are not instantly available. So what looks like it will really beat the 640 K barrier is really more a mirage than a watering hole. As long as you know what you are getting, and that is what you want, software emulators are fine. But if you really want capabilities beyond just running large memory hog programs, then you must look elsewhere.

The most promising product to investigate is the All Chargecard (\$395). While it looks expensive, it may turn out to be a bargain. This is a hardware/software solution and works especially well for people who have invested a lot of money in extended memory.

If you decide to just bite the bullet and go out and buy an LIM 4.0 expanded memory card, you will not

only have to buy the expensive card and enough memory to get your job done, but you will also have to abandon existing memory beyond the first 256 K in your system. LIM 4.0 works by switching memory in and out of the 640 K area, and therefore becomes increasingly less efficient the more there is in the basic system. So you pay for new memory and disable much of the old memory that you already own.

The All Chargecard utilizes every bit of memory that you already have! If you are adventuresome, you can purchase the card and do the installation yourself, but this is not a project for the timid. This is no ordinary card. In fact, it is not really a card in the conventional sense of fitting into an expansion slot.

The All Chargecard is a hardware device that fits between the CPU and the motherboard. You unplug the 80286 chip from the motherboard, plug in the All Chargecard, and then plug in the 80286 to the card itself. When you fire up the computer it operates as if you had done nothing. If you stop there, it is completely transparent to your system in every way.

Fortunately, however, this is not the end of the installation, but merely the end of the difficult part. From there on, it is a software job. By plac-

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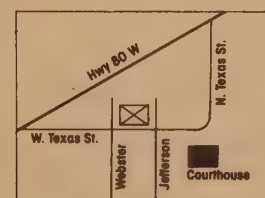
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Star NX-1000	189

SOTA 386si

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Micropolis 70MB	565

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ing a new driver statement in your config.sys file, you have really converted your memory to true LIM 4.0 expanded memory.

Now the fun really begins. TSR programs can be loaded into this extra memory area and will function as if they were in the conventional 640 K area. And you are now able to run *DESQview* and *Windows* as well as other programs that require real expanded memory. Suddenly you are into a new dimension of computing. You can, depending upon how much memory you have, switch instantly among application programs and, with the same ease, call up resident favorites with the touch of a couple of keys. This magic, however, is possible only if you install a new interface.

Interfaces

Once you have gone to the trouble to break through the 640 K barrier and added additional memory to your system, you may as well move on to the last step of upgrading and install a new interface. This will give a new look and feel to your computer.

It is possible to upgrade memory and continue to work just as you have in the past. It will certainly be an improvement, because you will be able to load both larger and memory

resident programs into the computer. But to really move into the modern age, why not use a windowing program that will allow you to take full advantage of the technology at hand?

I have worked with *DESQview* (\$129.95) and find it to be a real joy. Suddenly all of the things that I thought a computer should do are possible. *DESQview* allows you to open up to nine windows simultaneously and with the touch of two keys move instantly among them. The "instantly" part of this depends upon the amount of memory you have installed. A minimum of 2 Mb is recommended for *DESQview*.

But not only can you move between windows, you can also enlarge the windows to fill the entire screen, so you are not working in an environment smaller than your full screen. When you move a new window to the foreground, the other applications can continue to work in the background. Furthermore, you can transfer information between the windows by pressing a few keys.

Although I upgraded to *DESQview*, there are a number of other windowing environments on the market. Each has its own advantages and disadvantages. *DESQview*, however, is commanding an ever-increasing share of the windowing market and is published by a progressive company

Once you've broken through the 640 K barrier and added memory to your system, you may as well move on to the last step of upgrading and install a new interface. This will give a new look and feel to your computer.

that continues to improve its product and service to its customers.

They make other products besides the *DESQview* package. Especially useful is the *DESQview Companions* (\$99.95), which includes four modules.

The Datebook is a fabulous program for keeping track of your schedule and organizing your calendar. I have seen other programs that do the same thing, but I never really felt they were worth the effort. But this one seems different because I can leave it in one of the windows and it is instantly available.

The Notepad is a *WordStar*-like word processor that has the advantage for me of making it easy to edit *DESQview* macros. Unlike your regular word processor, it will convert *DESQview* macro scripts into text so you can edit them. This is often convenient when playing around with macros to get them just right.

Link is a communications package that enhances the basic program, but I could find no reason to switch from my standard communications package. And finally, the Calculator works just like a ten-key calculator, performing all of the basic functions and offering a screen version of the calculator tape. The only thing I don't like about this module is that it does not allow you to set it up to accept

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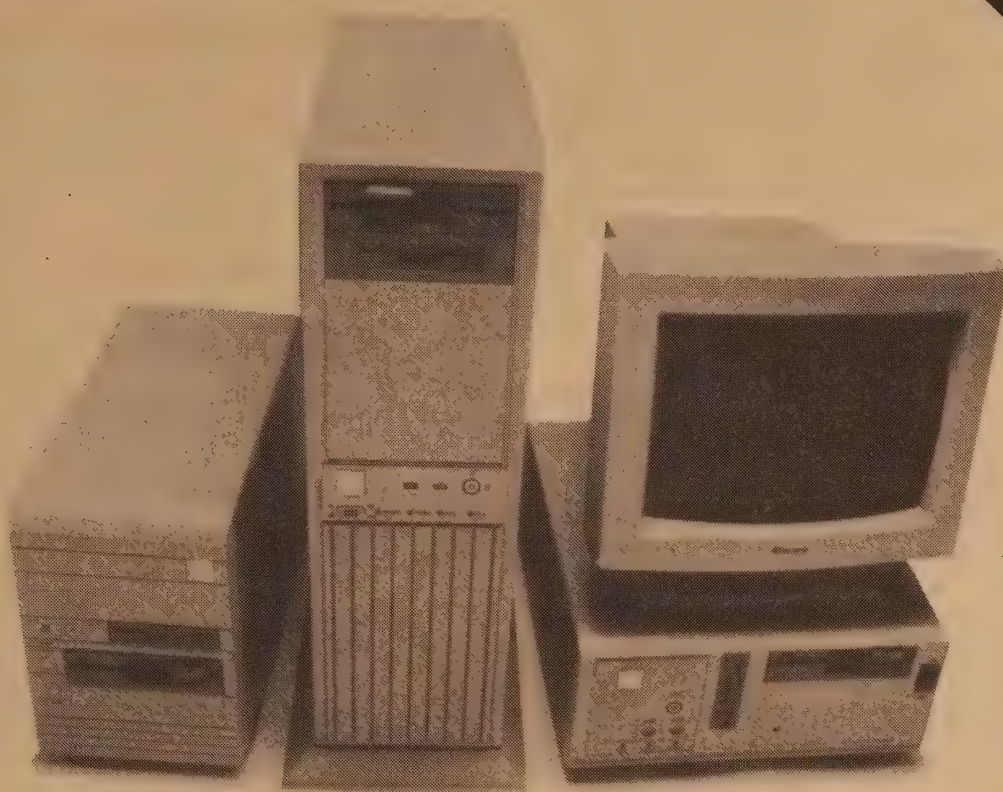
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Cache Memory:	None	None	None	None	None	None	3167
Speed:	12/4.77 MHz	12/8 MHz	16/8 MHz	20/10 MHz	20/10 MHz	25/12.5 MHz	64K up to 256K
Wait State:	Zero	Zero or one	Zero or one	Zero or one	Zero or one	Zero or one	Zero or one
Clock:		YES	YES	YES	YES	YES	YES
BIOS:	DTK/ERSO	AMI	AMI	AMI	AMI	AMI	AMI
Memory:	256K up to 640K	512K up to 4 MB	512K up to 8 MB	1 MB up to 8 MB	1 MB up to 16 MB	1 MB up to 16 MB	1 MB up to 16 MB
Disk							
Controller:	Dual floppy	2:1 interleave	1:1 Interleave	1:1 interleave	1:1 interleave	1:1 interleave	1:1 interleave
Floppy Drive:	360K	1.2 MB	1.2 MB	1.2 MB	1.2 MB	1.2 MB	1.2 MB
Keyboard:	101 keys	101 keys	101 keys	101 keys	101 keys	101 keys	101 keys
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Slots:	8/8-bit	6/16-bit, 2/8-bit	5/16-bit, 3/8-bit	5/16-bit, 3/8-bit	1/32, 5/16, 2/8-bit	1/32, 5/16, 2/8-bit	1/32, 5/16, 2/8-bit
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money figures with the decimal automatically in place.

Keyboards And Modems

Now that you have a computer that is really upgraded to a new 80286-based computer that you would buy today, you might think about a few more frills that can enhance the pleasure you get when you work at your computer.

The two most important things to the user, after the inner workings of the mysterious box, are the keyboard and monitor. You have already upgraded the monitor, so now you might think about a new keyboard.

My preference is for an enhanced keyboard that has a numeric keypad separate from cursor control keys. I have tried lots of keyboards and really, none was just what I wanted until now. I recently began using the Northgate OmniKey Plus (\$119). Never before did I think it was possible to fall in love with a keyboard, but it has happened. I'm head over heels in love with this one.

After giving the newer IBM layout with the function keys strung out along the top of the keyboard a fair try, I finally had to admit to myself that I preferred the old style with the function keys to the left of the typing

field. Well, Northgate has gone one better. They have the function keys to the left, with F11 and F12 raised above the other ten so templates will fit around the traditional ten function keys.

In addition, there is space for function keys to go across the top as well, so you can have your choice. This top row is still in the planning stages and will be available as an add-on. You will be able to set the keyboard up so those top function keys will work as plain Jane function keys or as either shift, alt, or control plus the function key. So, if you use a program that demands that you hit shift plus the function key, it can be done with one keystroke on the OmniPlus.

The touch is the best I have found to date. And finally, they have avoided the tradeoff that you generally have to make when getting an enhanced keyboard. Most have the layout so that the cursor control keys are really not as convenient as on the old numeric keypad. Northgate simply includes two numeric keypad layouts—one for the cursor keys and the other for numbers.

I really could go on and on about this keyboard, but let me simply say that I can think of no way a few bucks could make such a difference in the way your computer works and feels. If you don't like the keyboard, they'll

I recently began using the Northgate OmniKey Plus. Never before did I think it was possible to fall in love with a keyboard, but it has happened. I'm head over heels in love with this one.

give you your money back.

In the days when you bought your AT, 1200 baud modems were the standard. When the 2400 baud models first appeared, they were quite expensive. But in the last couple of years they have become reasonably priced, and there is little reason to buy a 1200 baud model if you spend much time using communications programs.

Over the years the 2400 baud modems have undergone a good deal of improvement. In inexpensive models, you can get a decent standalone model for about \$125. Internal modems will cost less because they don't require a housing or power supply.

Today the best models have some kind of compression feature that will ensure a faster throughput as well as more accuracy. Our old friends ATI make the model that seems to be the best buy for the money because their modem has MNP 5 error correction and compression. They say this will give the equivalent of a modem running at 4800 baud when the computer at the other end of the line also uses a modem that has the MNP 5 capability. Many of the bulletin boards already support this level of error correction.

ATI makes both a standalone (\$299) and an internal (\$239) model.

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Everex EGA/Printer	108
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360K/720K/1.2/1.4M	31
Hard Disk Card 8 Bit	44
RLL 8 Bit	67
WA-2	102
WA-2 Clone	80
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DTC-7287 1:1	144
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Game Card	16
Clock Card	21

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Teac 1.2MB	73
Teac 3.5" 720K	64

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ST-125	240
ST-238 KIT	269
ST-251	305
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ST-4086	532

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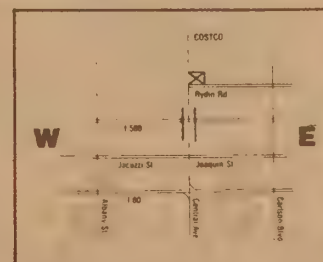
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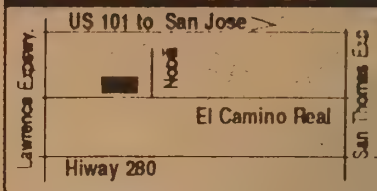
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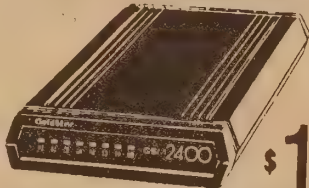
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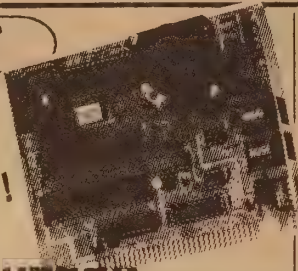


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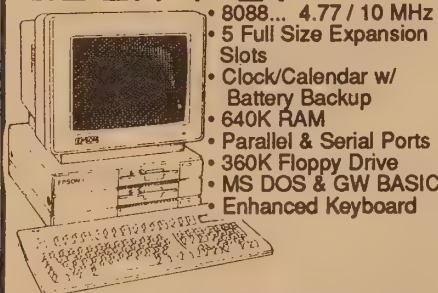
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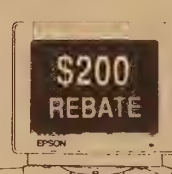
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64K CACHE!!

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- Enhanced Keyboard
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64K CACHE!!!

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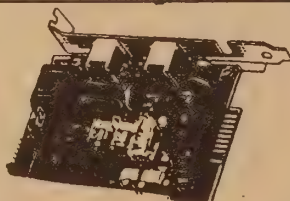
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- Waitek support
- 6 Drive bays
- 1 to 1 Interleave controller
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- I/O Parallel & Serial Ports
- Supports 3.5" Drives
- up to 1.44MB
- Enhanced Keyboard

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33MHz version....\$2999

TheComplete PC

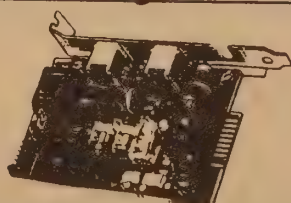
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- FAX 4800 4800 BPS ...allows continued use of PC for other work while you send & receive from any group III FAX machine
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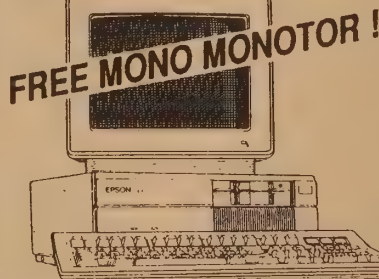


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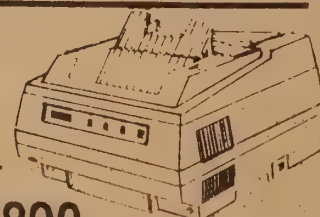
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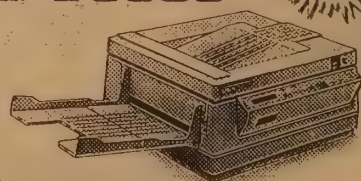


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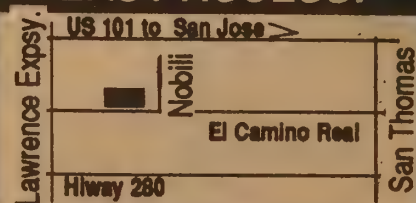
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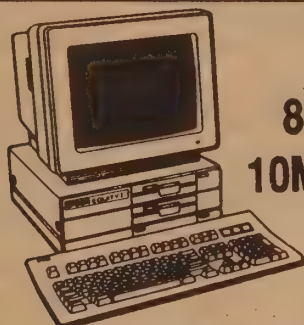
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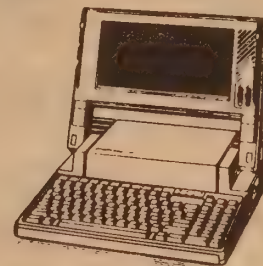
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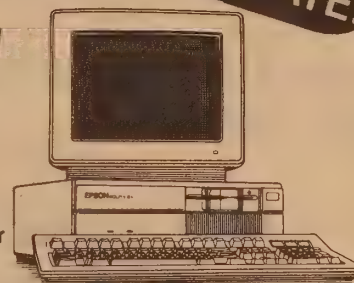
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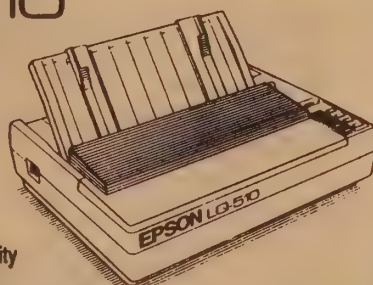


- 200cps superdraft, 30cps NLQ
- Easy typestyle selection
- Versatile Paper Handling
- Quick typestyle & function selection

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LQ-510

Letter Quality
Excellence!



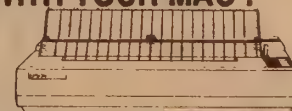
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- Optional multifont cartridge available

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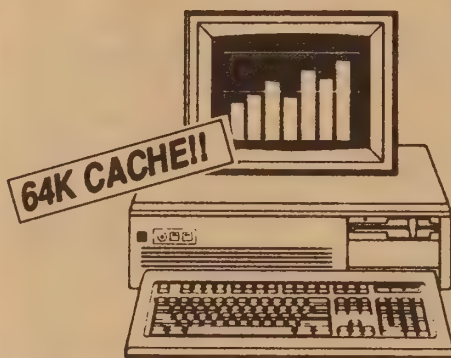
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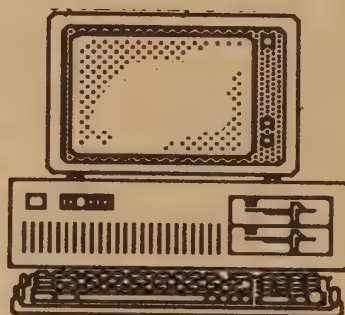


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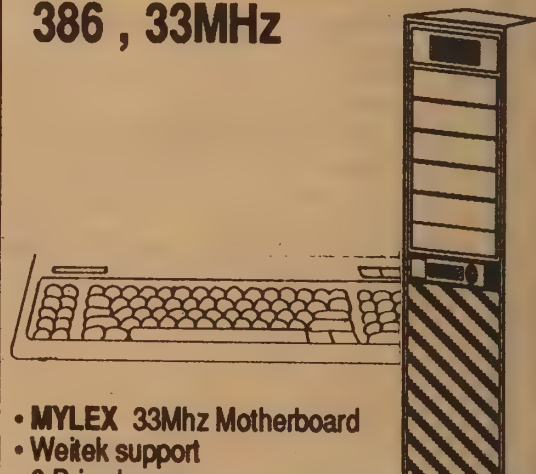
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386sx



- MYLEX 16Mhz Motherboard
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- Monitor not included

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- Enhanced Keyboard

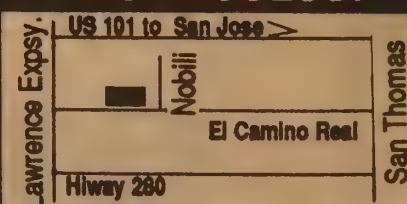
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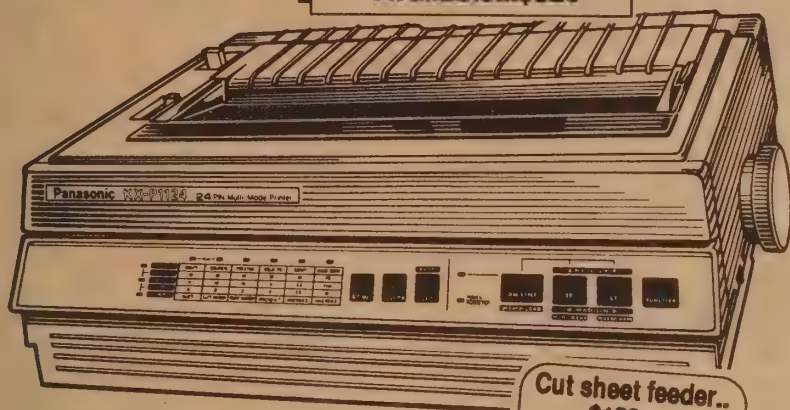
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NEW!! KX-P1624
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- "EZ-Set" Front Panel controls over 20 Functions!
- 24-Pin for True Letter Quality
- 192cps
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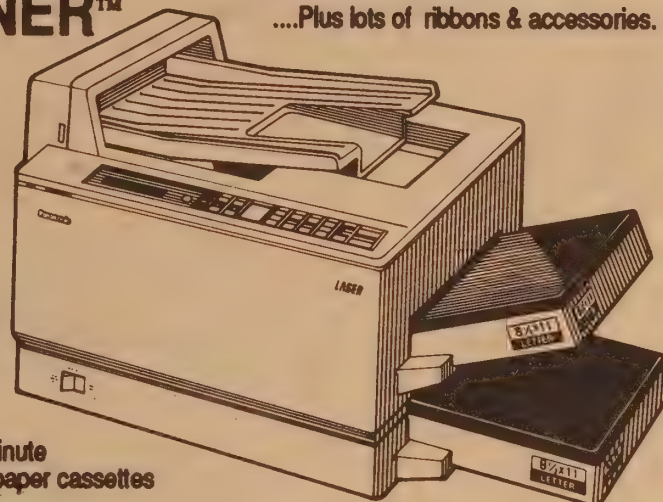
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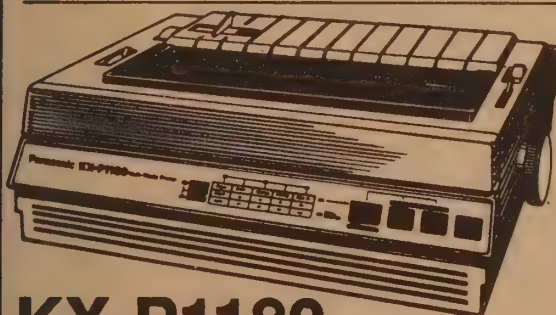
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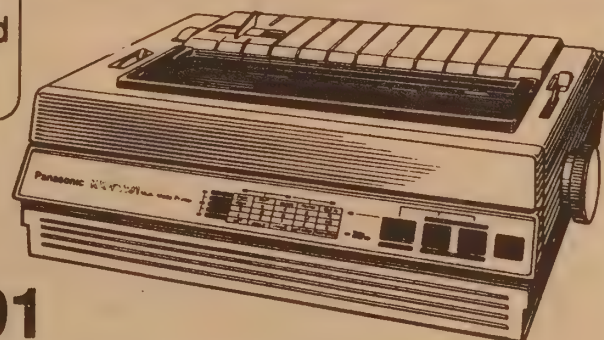
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KX-P1180

- "EZ" Front Panel Controls over 11 Functions!
- 192 cps
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- 4 Resident NLQ, & 2 DRAFT Fonts
- Combines over 3400 Type Styles!
- 240x216 dpi res.
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- Adjustable Push/PullTractor
- 11.7" Carriage
- 2 year warranty

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- "EZ" Front Panel Controls over 15 Functions!
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- 48 cps NLQ
- 4 Resident NLQ, & 2 DRAFT Fonts
- Combines over 4600 Type Styles!
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I find a lot to like about the external model that I use besides the compression. The front panel lets you do lots of things, like set the modem to and from auto-answer. This is especially useful in turning off the auto-answer setting after you are done with the occasional call in which you want to have the modem answer.

Another thing I really like is a decent volume control. I use the modem for dialing most of my phone calls and I need to be able to hear when the phone is answered so I can pick up my telephone handset.

The documentation that comes with the ATI is clear and thorough.

If you do a lot of modem work between two locations, you might consider buying a pair of high speed modems. Telebit makes the model 1000 (street price about \$600), that squirts out the data at 9600 baud. They have their own proprietary speed-up protocol that will work only if you have two of their modems. But at that point the transmission is faster than a fax.

Operating Systems

Once you have your AT brought up to completely modern standards for this kind of system, you may want to consider upgrading your version of DOS.

Microsoft recently introduced a new upgrade of the operating system. If you have an AT-class computer, you have at least DOS 3.0, as this was the first version of the operating system that supported high density 5 1/4" drives. There is really no reason to upgrade your operating system beyond DOS 3.3, unless you want the newest version or have a specific need.

Although there are a number of refinements in version 4.01 (4.0 is to be avoided, it is generally thought), the main differences that you will notice are the inclusion of the DOS Shell. This is a program that allows you to navigate around DOS without ever seeing the C>. It also gives you the option of using a mouse. Many who are familiar with navigating DOS think the shell is a waste of time, but if the C> has always been the symbol of an unpleasant mystery to you, then perhaps there is some value to the shell.

The second major refinement is that DOS 4.x will support hard disk drives larger than 32 Mb. This means that you do not have to partition a large hard disk into several disks. Although many like the smaller disk partitions because it forces them to organize their disks in a more orderly fashion, I suspect that in time the larger single directory will win out.

In any case, there is no compelling reason why you must upgrade your operating system beyond version 3.3.

The ideas covered in this article are designed not as a step-by-step guide to upgrading your computer, but rather as a sketch of what is possible

and practical.

You can easily upgrade selectively. The most dramatic change will come from expanding your memory and installing a new interface. Certainly this is the wave of the future, and the future is here now. ■

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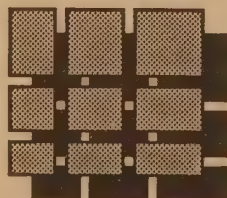
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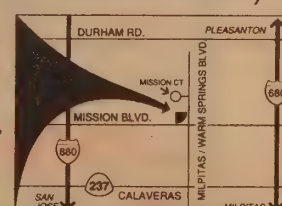
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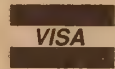
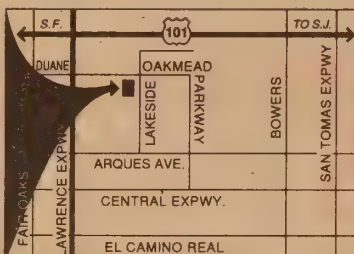
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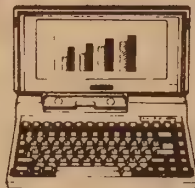
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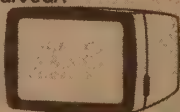
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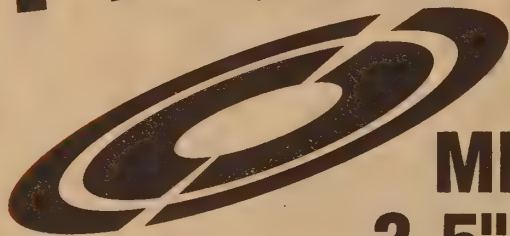


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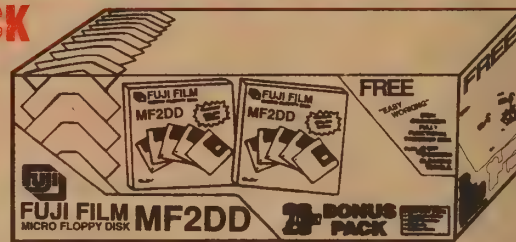
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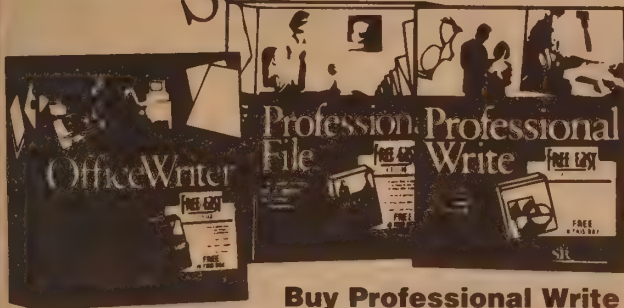
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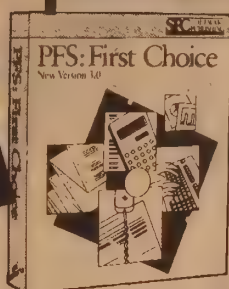
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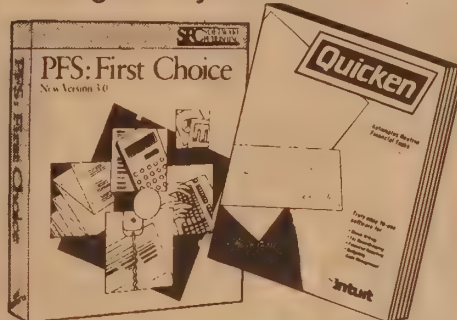
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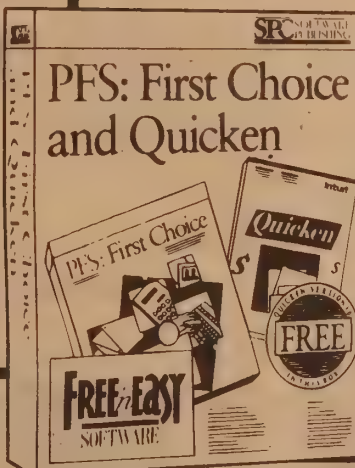
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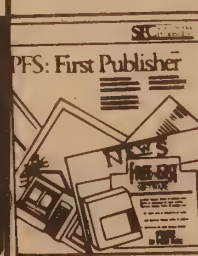
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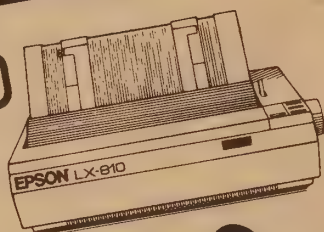
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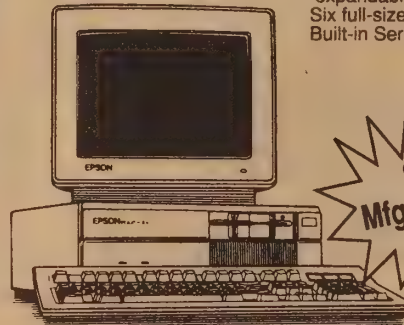
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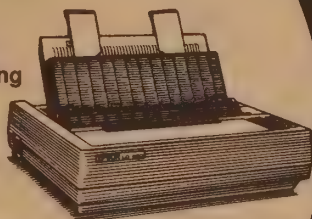
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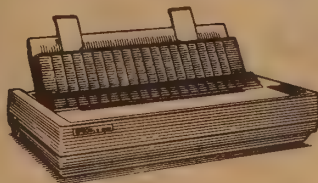
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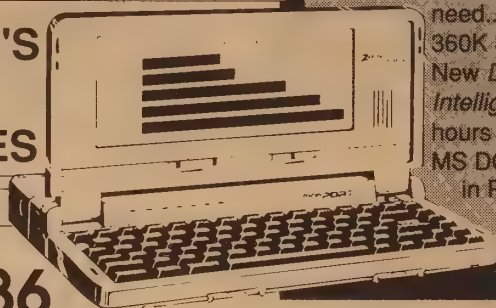
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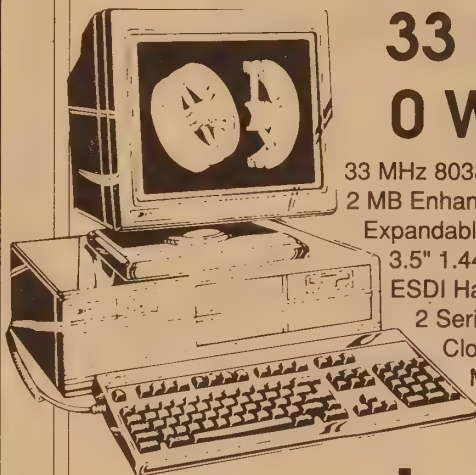
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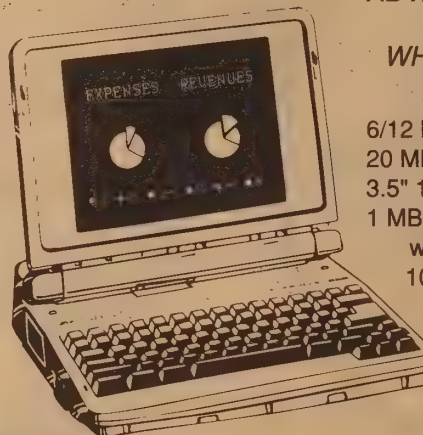
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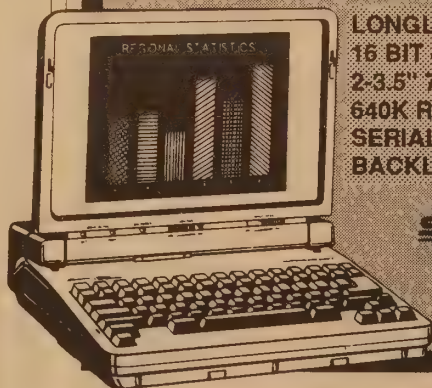
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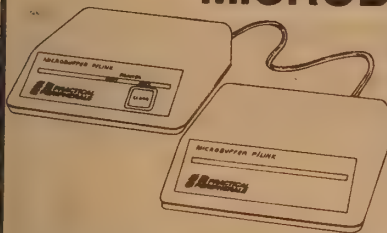
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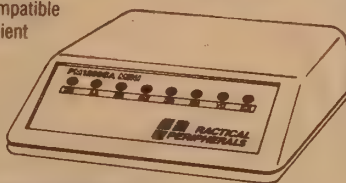
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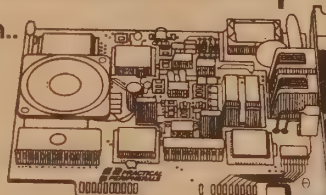
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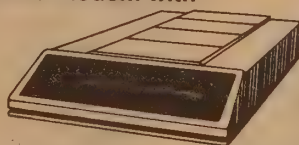
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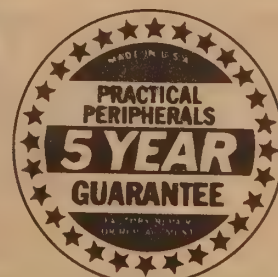


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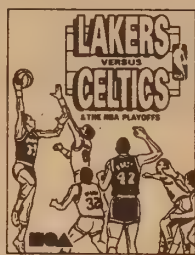
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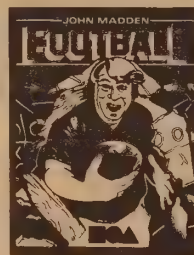
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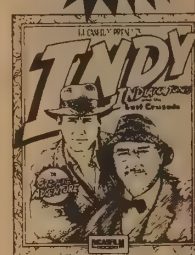
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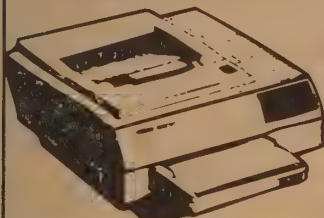
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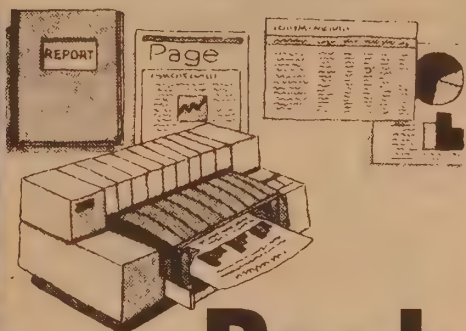


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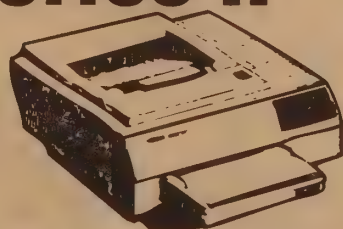
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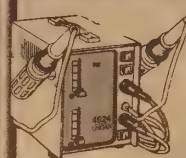
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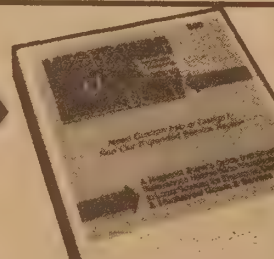
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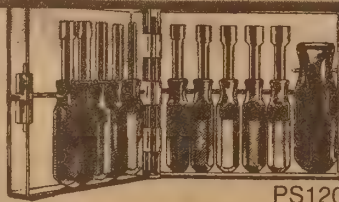
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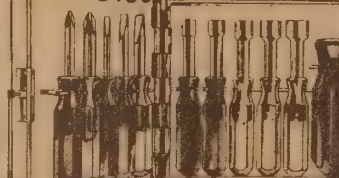
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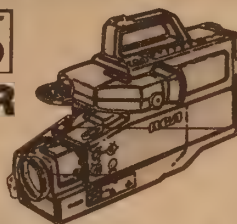
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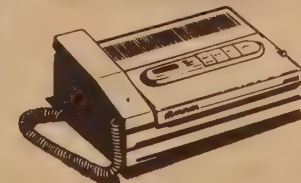
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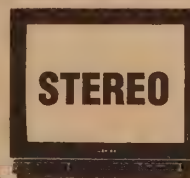
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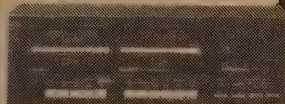
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MULTITASKING With DOS

By Lenny Bailes

I called my computer guru the other day for advice on the current state of multitasking, and here are some of the points he made: The multitasking concept is still mostly hype, he says. "No machine yet made does multitasking successfully. Even when the system works, which rarely happens, foreground and background functions are slowed to an exasperating crawl, and interrupt each other annoyingly. Even IBM has stopped talking about multitasking with OS/2. If you absolutely must do multitasking, the most efficient way to do it is to buy and use a second computer."

Whatever the industry gurus have to say about multitasking, I continue to find it useful and convenient to do the following every day:

- a) Dial up bulletin board systems and upload and download files in the background while continuing to type in a word processor.
- b) Run two copies of the same word processor concurrently, one sending output to a printer, the other printing the same document to an ASCII disk file for a client, while at the same time DOS formats new disks in the background.
- c) Run desktop publishing and word processing programs in concurrent windows, with the ability to bring up a drawing program to modify a graphic, or open a window to do DOS file manipulations (while, in the background, communications

software continues to dial, upload or download).

I accomplish these tasks easily with Quarterdeck's *DESQview* 2.2 on a 12MHz 80286 machine with 640 K of conventional memory and an additional megabyte and a half of expanded memory. It would be just as easy for me to run extended database or spreadsheet compilations instead of word processing tasks.

For anyone who wants to do two things or more concurrently on an MS-DOS computer, *DESQview*, selling for under \$100, is almost as essential a piece of software as DOS itself. Properly installed, *DESQview* does its job transparently on 8088, 80286 and 80386 computers alike. It allows

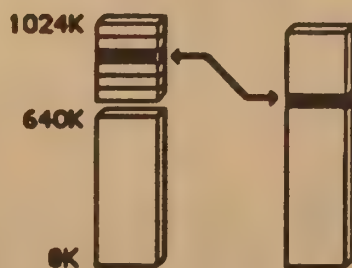
you to run and switch between as many off-the-shelf PC applications as you can provide memory for.

Many people are already aware of *DESQview*'s capabilities through word of mouth and advertisements, but become frightened off by the technical concepts needed to exploit it efficiently. Quarterdeck Office Systems is releasing several enhancements in October to make it easier to understand the fine art of memory management.

This is welcome news, but the most difficult thing for most people to get straight with running *DESQview* is what kind of hardware they're going to need. What kind of memory card or motherboard do you need, what is "expanded memory," and how does

EMS 3.2

- 64K pageframe
- above 640K
- store data only

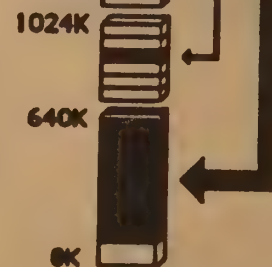


EMS 4.0

- pageframes larger than 64K
- below 640K
- run programs in expanded memory



exTended memory



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CDS 386 SX Model 20

A great 20 Mhz 386 SX that allows you to Run all current and future 80386 Software. Fantastic workstation with improved memory management. This system includes a US manufactured main board running at 16 or 20 Mhz.:

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CDS 386 Model 20

This 20 Mhz system is a excellent entry level 386 system.. It is a US Manufactured board with solid performance . Memory option include a 1/2 MB bd and a 4/8MB board. This system includes:

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This 25 Mhz system is a great 386 value based page mode C and T chip set. Options include a full size bd in a full tower case w/ 230 watt PS; 80287 or 80387 co-processor socket; 32 bit memory bd. The system includes:

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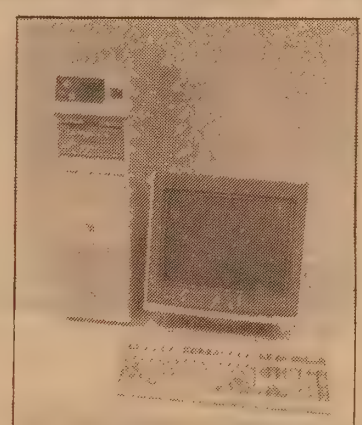
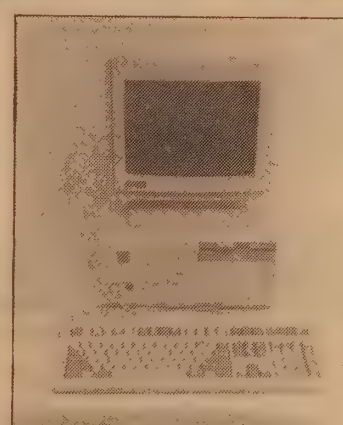
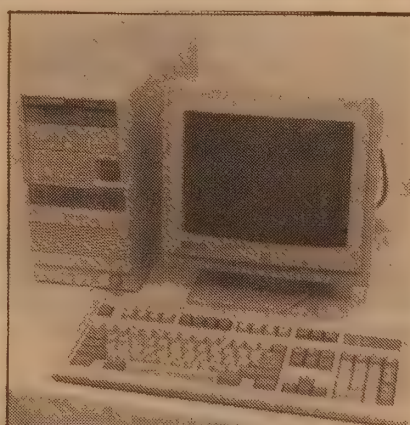
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CPU	80286-8	80286-8 / 10/12	80286-12	80286-16	80286-12	80386SX-16	80386SX-16	80386-20/25	80386-25	80386-33
Math Co-po	80287-2/3	80287	80287	80287	80287	80387SX	80387SX	80287/80387	80387	80387-33
Cache Ram	N	N	N	N	N	N	N	N	64K/256K	64K/256
Dram Type	64/256K	64/256K	64/256/1024K	64/256/1024K	256k/1M SIMMS	256k/1M SIM	256/1M SIM	256/1M SIP	256/1M SIM	256/1M SIM
Mem Speed	150ns	120 / 100ns	120/100 ns	80 ns	100ns	100ns	100 ns	100/80 ns	100/80 ns	80 ns
Mem Config	512/640K/1M	512/640K/1M	512/640K/1/2/4M	512/640K/1/2/4M	512K/1M to 6M	512/640k/1/2/4MB	512K to 8MB	1/2/4/8/16MB	1/2/4/8/16MB	1/2/4/8/16MB
8 Bit Slots	8	8	2	2	(2) 5	2	2	1	2	1
16 Bit Slots	0	0	6	6	(3) 3	6	6	4 + 2 Ser/ 1 Par	5	5
32 Bit Slots	0	0	0	0	0	0	0	1	1	1
BIOS	Quadtel	Quadtel	Award /AMI	Award /AMI	Phoenix	Award	Phoenix	AMI	AMI	Phoenix/AMI
Relative Speed	9	12.4 / 15.6	15.6	21.6	15.4	20.1	18.0/21.4	32.6(2 banks)	40.2/43.8	58.7
SI Rating	8.2	11.0 / 14.7	13.7	18.3	15.2	17.6	17.2	29.7	31.6	40
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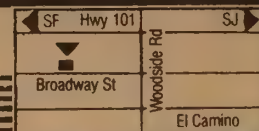
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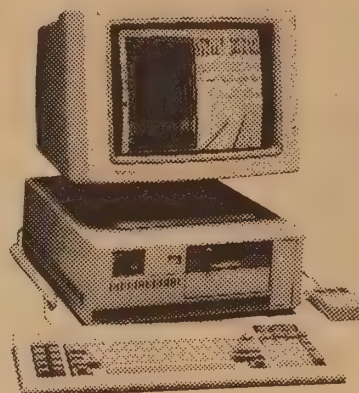
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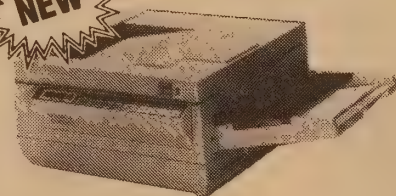
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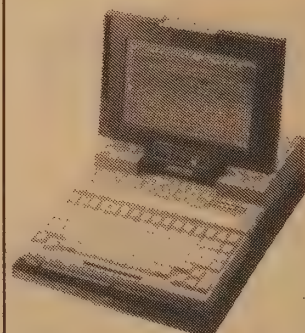
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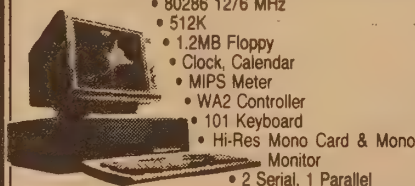
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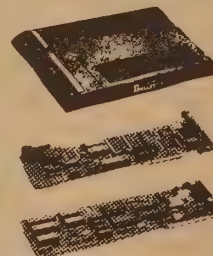


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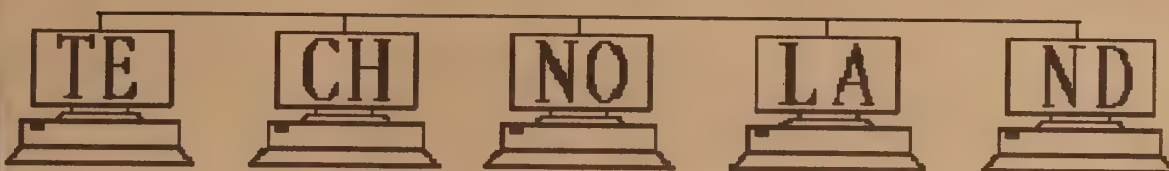
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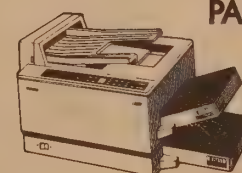
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- 240x216 dpi res.
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- 11.7" Carriage
- 2 Year Warranty



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it differ from "extended memory" or "conventional memory"? Once you buy *DESQview*, how do you get it to use the memory, and, if you want to upgrade an existing system, what should you buy?

Memory: Extended Vs. Expanded

Gary Saxer, Quarterdeck's leading evangelist, often tells user groups to think of exTended memory for AT computers as Totally useless, whereas exPanded memory is for Programs to run.

Extended memory arrived first in the PC world with the 80286 chip's capability to address 16 Mb instead of one. MS-DOS, the operating system, could still address only 1 Mb at most, so when the IBM ATs came out, all the extended memory could do was act as storage space. Up to 16 Mb could be used for virtual disks (RAM drives), print spoolers and disk caches (extra pockets in RAM for DOS to store information without having to reread it from a floppy or hard drive).

The XT's (8088s) were left out in the cold, not capable of even these small feats.

Lotus, Intel, and Microsoft formed an alliance in 1986 in order to trick DOS into being able to use more memory on any kind of PC. The LIM Expanded Memory Standard was the result. Expanded (program) memory became something that worked like the RAM on your video card. While it occupied no real space within the

for an expanded memory window (called a page frame). The EMS page frame acted like a dumbwaiter or ferry between DOS and the RAM chips mounted "off to the side" on your EMS card. Programs like Lotus 1-2-3 could now shunt chunks of data through the 64 K page frame and store them on the EMS card. The card could store up to 8 Mb of information, but Lotus or dBASE would call for the information in 64 K chunks through DOS, conforming to DOS's limited 1 Mb address space.

EMS 3.2 (as the above-described process was called) allowed programs specifically coded for EMS (including print spoolers and RAM disks) to hold large spreadsheets, databases, or pixel arrays in memory, but no program could use more than 64 K of expanded memory at one time.

AST Research did the LIM EMS 3.2 standard one better. They built the capacity into their memory boards to "page" more than one 64 K chunk at a time through the EMS window. They called their products EEMS cards for Enhanced Expanded Memory. What the Double-E accomplished was to allow *DESQview* to treat entire programs (larger than 64 K) as part of its own data. This let *DESQview* run entire programs in EEMS concurrently with programs running in conventional DOS (0 K to 640 K).

This was the big breakthrough. Users were now able to run communications programs and recalculate spreadsheets in the background,

THE ALL CHARGECARD

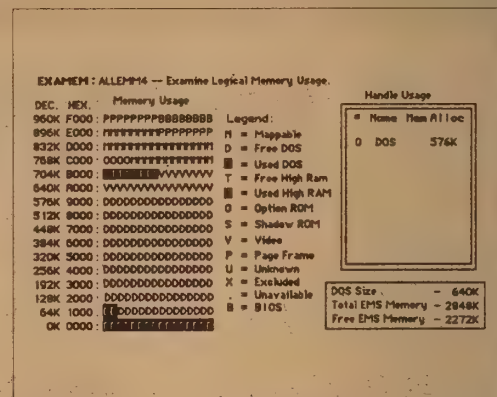
No LIM 4.0 card I've used can match this product for a 286 machine running *DESQview*. The Chargecard is a credit-card-sized board which plugs into the 80286 socket on your motherboard. With the supplied software driver, all conventional and extended memory in a system automatically converts to pageable LIM 4.0. You can use the memory mounted on your motherboard and/or add in an inexpensive extended memory card. (Extended memory cards are usually available for \$50-\$100. Check the ads in this issue of *MicroTimes*.)

The Chargecard is guaranteed for systems running up to 16 MHz, and is known to work on some 20 MHz machines. The 386 "paging" capability allows for loading of TSRs and device drivers into expanded memory, as with QEMM on the 386. For systems running Hercules and CGA cards, windows of up to 640 K can be opened both in conventional and expanded memory. The All Chargecard has recently been OEM'd by IBM as an officially recommended add-on for their PS/2 systems.

All also markets a special 8088 Chargecard for XT's, which works in conjunction with a special 8088 memory card, sold separately. An 80386 version of the Chargecard is in the works. The software bundled with the Chargecard includes a graphic display utility which teaches you how to allocate high memory for maximum efficiency.

The only caveat I would make about the Chargecard is that it's a good idea to have the dealer install the card when you purchase it. Although the manual gives extensive installation instructions, there are three different kinds of 80286 sockets found among common clones, and only one (the PGA socket) is really easy to pry the CPU chip out of. If you have one of the other two kinds of sockets on your motherboard, even if you scrupulously follow the instructions, you are likely to bend or break some fragile pins and be sorry later. In the Bay Area, the Software Engineering Store offers the Chargecard at a discount, and will install it for you for a small additional fee.

—Lenny Bailes



The utilities provided with the All Chargecard can display how DOS allocates your memory.

FOR ANYONE WHO WANTS TO DO TWO THINGS OR MORE CONCURRENTLY ON AN MS-DOS COMPUTER, *DESQVIEW*, SELLING FOR UNDER \$100, IS ALMOST AS ESSENTIAL A PIECE OF SOFTWARE AS *DOS* ITSELF.

allowable megabyte of DOS, EMS was allowed to communicate with the system by swapping information into a fixed address space in the memory area between 640 K and 1 Mb. This area, sometimes referred to as high memory, is the place where IBM decided to place the address space for video memory (704 K-736 K) and the ROM BIOS (896 K-1 Mb).

Other PC peripherals like disk controllers and scanner cards would sometimes claim a chunk of "high memory," but almost everyone had some contiguous segment between 640 K and 1 Mb which could be used

while they continued to type or perform DOS file manipulations in the foreground.

A variety of memory cards began to hit the market at this point. Some were extended memory only—totally useless, according to Saxer, except on a 286 machine for print spoolers. Some cards were LIM 3.2 (useful with programs like Lotus 1-2-3, dBASE, and Framework to hold large chunks of data in RAM). The most desirable cards were EEMS cards produced by AST Research (used with *DESQview* to run entire programs in expanded memory).

If you've got all that down, you're almost ready to start looking for contemporary memory enhancement hardware. The Lotus-Intel-Microsoft people, realizing that AST had outdone them, decided to collaborate with AST in 1987 to develop the current EMS 4.0 standard. LIM 4.0, when implemented on a new memory board, contains the hardware improvements of AST together with an improved software standard that can address up to 32 Mb of expanded memory instead of only eight.

Choosing EMS Hardware

If you own a 386, you may skip most of the following information about expanded memory boards. Your machine can emulate LIM 4.0 EMS with the extended memory installed on the motherboard. Your main con-

cern for expansion will be determining the type and size memory chips your board uses and whether to stick with Quarterdeck's 386-control software or to sample more exotic products.

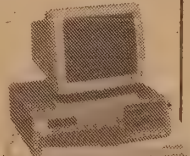
Quarterdeck's QEMM.SYS lets you automatically use all of your computer's memory with *DESQview*. Or you can load RAM-resident programs and device drivers into expanded memory, saving conventional memory for other RAM-hungry applications. QEMM v.5.0, the new release, is reported to be able to reclaim the 384 K of the first megabyte, which some systems presently use only as dedicated shadow-RAM.

If you use a PS/2 Model 50 or 60, Quarterdeck's new QEMM 50/60 will allow you to load TSR utilities into expanded memory. Even more power is available for PS/2 systems with the All Chargecard from All Computer

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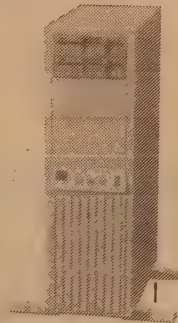
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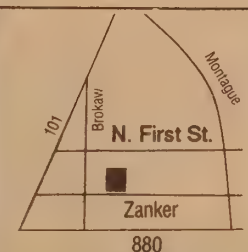
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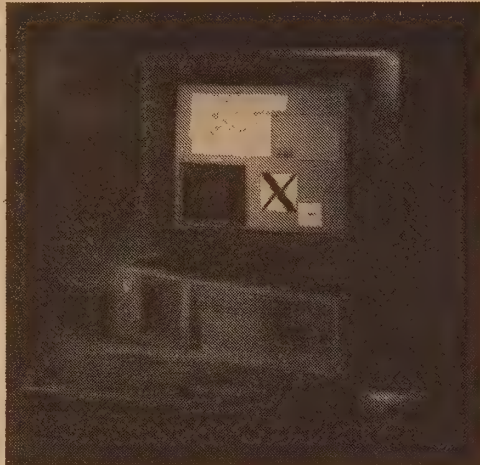
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Systems of Toronto, Canada. The Chargecard is a miraculous bit of hardware which gives 286/extended memory the ability to emulate 386/paged memory. QEMM 50/60 works only with IBM's special XMS memory cards, whereas the Chargecard will convert any extended memory into EMS. The Chargecard also does this trick with non-PS/2 80286-clones. The Chargecard is the most efficient way to gain LIM 4.0 capabilities on any system where the motherboard holds more than 1 Mb of RAM.

Generic Clones

If you own an older AT or 286-clone, it probably holds a maximum of 1 Mb on the motherboard. This is where add-on memory cards come into the picture. Check your manual to find out what the maximum and minimum memory configurations of your system are, and what size and type memory chips the motherboard uses. (Older motherboards use 16-pin 256 K DRAM chips. More recent motherboards may use 1 Mb DRAMs or special 256 K or 1 Mb SIMMS modules. These chips aren't interchangeable on most EMS cards.) Knowing the memory capacity of your motherboard will help you determine

b) Most AT clones will only let you disable down to 512 K on the motherboard. If you remove all but 512 K, an EMS card can backfill the other 128 K. This gives you 640 K of conventional memory plus the remainder on the EMS card configured as expanded memory. (Some cards will let you configure the remainder as either expanded or extended. This can be useful at times.) With a 512 K-minimum motherboard, the largest programs that run concurrently in EMS are 128 K. Under *DESQview* you can run programs totaling about 500-550K of conventional memory, and as many 128 K windows as you have RAM for on the EMS card. For instance, if you have 512 K on the motherboard and 1 Mb on the EMS card, you will boot up with 896 K of expanded memory. You'll be able to run one 500-550 K program plus six to seven 128 K programs *all at the same time*.

In some cases, if you use a Hercules or CGA graphics card, the 128 K window can be expanded to 192 K by using video address space. That's the biggest window you can get with an EMS card and a 512 K minimum motherboard. (If

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whether to buy an All Chargecard or increase your memory with an add-on board.

Most motherboards are not wired with the LIM 4.0 "paging" capability. The All Chargecard adds 4.0 paging to any 286 motherboard, or you can buy an add-on memory card which fits into one of the slots on the bus. The "true LIM 4.0" cards are made to substitute memory for chips normally mounted on the motherboard. EEMS and LIM 4.0 cards can "backfill" a portion of memory from 256 K to 640 K. The *DESQview* manual devotes a considerable number of pages to the arcane art of backfilling. Summarized briefly, it goes like this:

a) To run programs in EEMS or LIM 4.0 EMS, you must have an equal amount of "pageable" memory installed below 640 K.

you've been following carefully, you may have figured out that you want an All Chargecard to multi-task bigger programs with this kind of system.)

c) You may be lucky enough to own an AT-clone which disables down to 256 K on the motherboard. In that case, if you backfill from a LIM 4.0 card, the largest program you can run in EMS will be 384 K (640 - 256 = 384). Add another 60-90 K to the window size if you use CGA or Hercules card and can access video memory.

d) You may own an AST Research 286 machine. These have LIM 4.0 paging wired into the motherboard. No backfilling is necessary with these motherboards, and the programs you run in EMS can be

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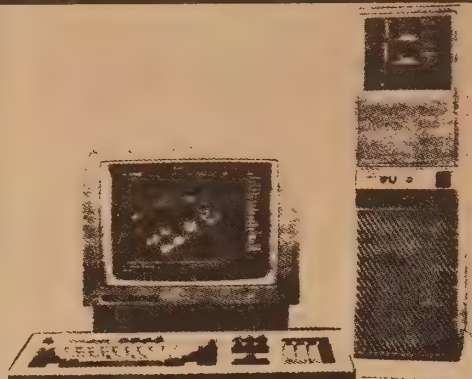
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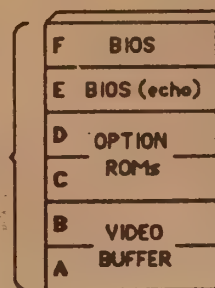
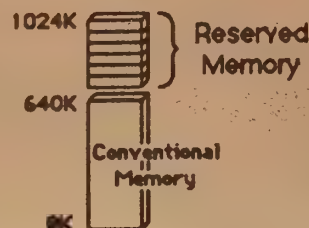
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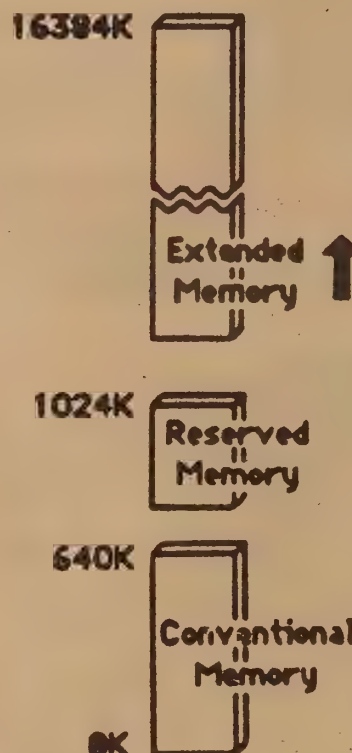
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the same size as those in conventional memory (usually a maximum of 500-550 K)

Reviewing what we've covered: running programs in EMS requires either AST EEMS memory, a hardware-compatible LIM 4.0 board, or a motherboard with hardware LIM 4.0 wired in. (Some newer motherboards using the Chips & Technologies Chipset claim to be LIM 4.0 compatible, but the compatibility is software only. NEAT motherboards won't run programs in EMS under DESQview without an add-on card.)

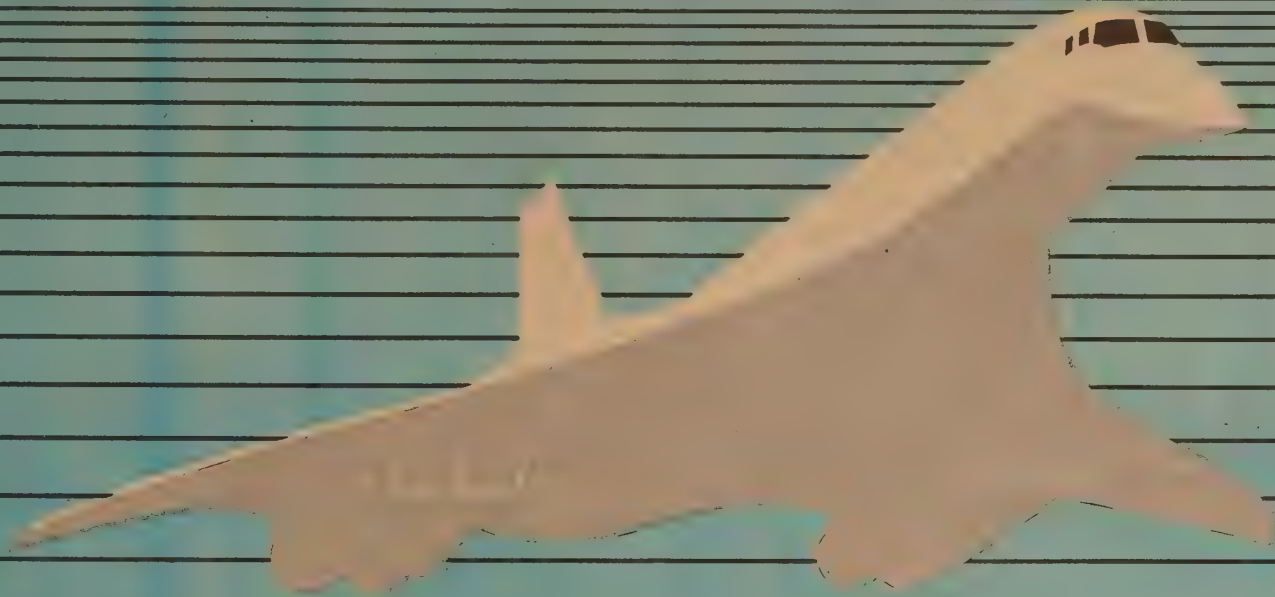
There are several older AST memory cards which will work on 286s with clock speeds of 6-10 MHz, and some which work on 8088 machines. If you own a faster machine, you will generally need a newer board and/or the All Chargecard. Unlike the early

Intel boards, and their clones, AST EEMS memory can be upgraded to full LIM 4.0 compatibility with just the addition of a new software driver. AST has these drivers available on its BBS system, and will ship them by mail.

If you own an early Intel Above-Board, you can also upgrade with new software; the 4.0 software driver will perform faster than the LIM 3.2 driver, and it will address 32 Mb instead of 8, but it will not run programs in EMS under DESQview. This goes for the Everex RAM 3000, and DTK Rambank as well.

If you own an older LIM 3.2 board, DESQview's access to the EMS is limited to utilizing it as swap space, the same as if the memory were configured as a RAMdisk. You can open multiple windows, as with Software Carousel, but once you exceed 640 K,

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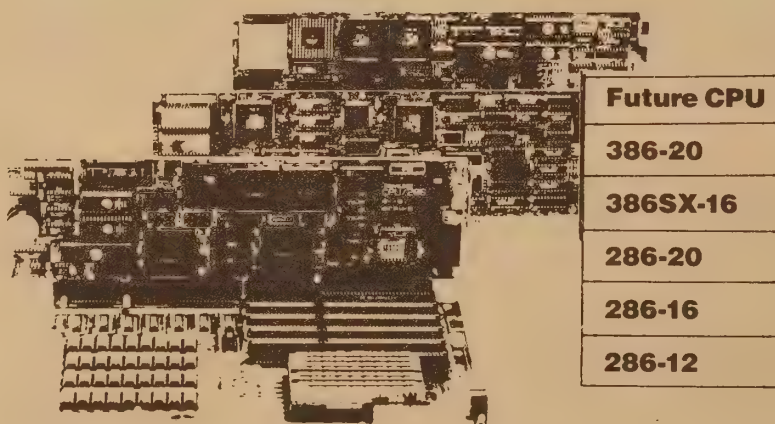
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previously loaded programs are suspended and stored; they don't run concurrently.

Typically, older boards from AST and Intel are offered by resellers for around \$75 to \$150 with 0 K on the board.

The most popular vendors of current, fully compatible LIM 4.0 cards are:

AST Research—Rampage+, holds up to 8 Mb and can be used in systems up to 16 MHz. Allows control of backfilling in 128K increments (uses SIMMS modules, not 256K DRAMS).

Intel—Above Board+, holds 2 Mb (DRAM chips) (piggyback card w/6 Mb capacity sold separately). Increments extended/expanded memory in 512 K segments (not as convenient as AST).

Micron Technology—Micron EMS Board, holds up to 2 Mb (DRAM chips) 2 Mb piggyback sold separately. Backfills in 128 K increments.

CEI of America—RAMFLEX, holds 2-8 Mb (1 Mb DRAMs only). This board got raves last year in *Infoworld* as the fastest performer of all.

For more information about these

boards, Quarterdeck suggests that customers refer to two issues of *Infoworld* (12/12/88 and 2/20/89), where there are extensive reviews.

Longshine Technology—Longshine EEMS Card. This is a clone of the AST board, which I discovered at a swap meet. It retails for under \$100 with 0 K on the board, and performs satisfactorily with *DESQview* as an EEMS board on systems running up to 12 MHz clock speed. The company has a beta LIM 4.0 driver which runs *Windows 286* satisfactorily but has problems with versions of *DESQview* above 2.01. The card holds up to 2 Mb in 256 K DRAMs and must be configured as either all extended or all expanded. It may work on 12-16 MHz systems (see if you can arrange a test before purchase).

Memory Speed Considerations

Most XT's and AT's in the 8-10 MHz range require memory chips with a speed of at least 120 nanoseconds. For the 12-20 MHz range, 100 nanosecond chips are required. Above 20 MHz you need 80 ns chips. Depending on your motherboard and card, you may be able to get away with mixing chips of different speeds, but don't count on this unless you physi-

cally confirm it first. If in doubt, make sure all the chips on the motherboard and EMS card conform to the minimum speed requirements.

Tweaking DESQview For Best Performance

In the next installment, we will review Quarterdeck's new enhancements for *DESQview* and pass on some further tips for maximizing its performance capabilities. ■

Resources

DESQview, DESQview 386, QEMM
Quarterdeck Office Systems
150 Pico Boulevard
Santa Monica, CA 90405
(415)392-9851

Rampage+
(\$595 w/0 K)
AST Research, Inc.
2121 Alton Ave.
Irvine, CA 92714
(714)863-1333

Above Board+
(\$695 w/512 K)
Intel Corp.
5200 N.E. Elam Young Parkway
Hillsboro, OR 97124
(503)629-7354

Micron EMS Board
(\$595 w/512K)
Micron Technology, Inc.
2805 E. Columbia Rd.
Boise, ID 83706
(208)386-3900

RamFlex EMS Board
(\$595 w/0 K)
CEI of America
512-A Herndon Parkway
Hemdon, VA 22070
(800)322-3464

Longshine EEMS/LIM 4.0 Board
(\$87.50 plus shipping, w/0 K)
Longshine Technology, Inc.
2013 N. Capitol Ave.
San Jose, CA 95132
(408)942-1746

All Chargecard
(\$395—286 socket adaptor kit, \$100)
All Computers, Inc.
1220 Yonge Street, 2nd Floor
Toronto, Ontario Canada M4T 1W1
(416)960-0111

The Software Engineering Store
657 Mission Street, 3rd Floor
San Francisco, CA 94105
(415)957-0111
Authorized dealer for All Chargecard; performs installations.



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Telemidas 1200	\$55

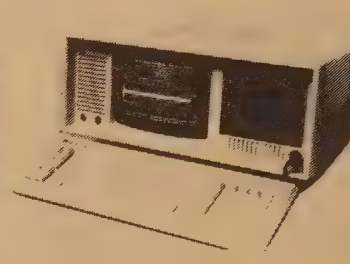
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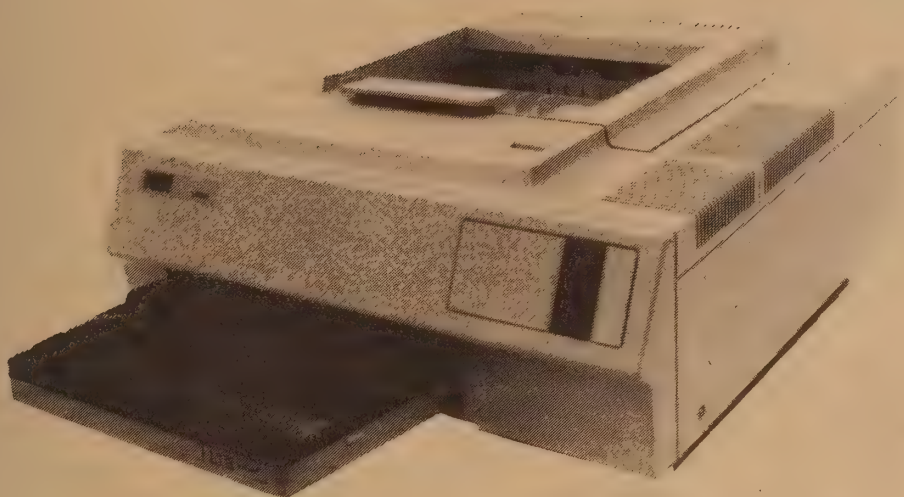
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The Quake

continued from page 24

398, 2 of 455: David Hawkins (dhawk) Tue, Oct 17, 1989 (23:53)

I was in our apartment in Sausalito—which sits on a steep hillside. I had no doubt that we were going to slide right on off. Drove and walked over to WELL office, and we all played volleyball for an hour while early reports came in.

Power just came back up around 11:00 or so. The system should be OK, but if you notice any oddities, send email about them to dhawk.

398, 32 of 455: John Romkey (romkey) Wed, Oct 18, 1989 (02:57)

I was sitting at home when the house started shaking and waves rippled through the walls and floor. I ran outside. No damage.

I didn't realize how bad the quake was till I was on my way (at 5:30) to SF airport to pick up a couple of friends coming in on a 5:45 flight. I figured it might be a little late. I turned on the radio and found out that most of the major stations weren't broadcasting. The extent of the damage slowly dawned on me as I listened to reports of the Marina fire, 17 being closed, 280 buckling and breaking in places, the fire at (or near) the UCB library, buildings collapsing, part of the Bay Bridge collapsing. It was the kind of nightmare you don't wake up from.

I picked up a woman who waved at me from the side of the road. She wanted to go to SFO also: some friends were driving her there when the earthquake hit and they were afraid and wanted to go back and make sure their home was okay. So she had them let her off there (within walking distance, but not nice walking distance) and I gave her a ride the rest of the way. SFO had been evacuated when I arrived; no more people were allowed in and there were rumors of gas leaks, electrical outages and ceilings collapsing.

I drove back home along El Camino, as 101 South was solid cars, and 380 was also packed. El Camino was running pretty well, with about 2 out of every 3 traffic lights out of order, and a lot of other electrical disruptions. I was impressed at how well California drivers handled this: they treated dead lights as 4-way stops, and traffic went along safely and fairly. In Boston, there would have been major casualties at every big intersection.

My friends' plane was rerouted to San Jose, and made their way back to my house while I headed down to my office in Mountain View in hopes of finding a phone that worked—I couldn't coax dial-tone out of the phones at home.

Sharon Fisher (slf) is away in Michigan at EDUCOM this week. I talked to her on the phone. Apparently the rest of the country has had pretty prompt news coverage of the event. She and several other people from the Bay Area who were also at EDUCOM seemed to be kind of freaking out about it. Understandably. I tried to reassure them.

398, 84 of 455: Judith Weaver (panda) Wed, Oct 18, 1989 (09:53)

Berkeley very quiet right now. I walked along Shattuck between Delaware and Cedar at a few minutes before eight this morning. Next to Chez Panisse a homeless couple, bundled into a blue sleeping bag, sat up, said, "Good morning" and then the woman smiled, said, "Isn't it great just to be alive?" I agreed. It is. Great.

398, 97 of 455: Sharon Lynne Fisher (slf) Wed, Oct 18, 1989 (10:23)

It was pretty appalling here in Michigan. A few minutes after the quake, we started hearing about "an earthquake in San Francisco, they had to stop the World Series, the Bay Bridge collapsed." I thought they had to be exaggerating. I went upstairs to the room where the NeXT people were staying to watch TV. One woman there lived four blocks from the fire in the Marina; another lived at Skyline and Page Mill.

Despite all the warnings about not telephoning, we all did anyway. Many of the people in San Francisco said they could receive calls but not make them, so I ended up calling a lot of people's mothers in various parts of the country for them. "Hi, you don't know me, but I'm a friend of your son and he wants you to know he's OK." People were very grateful and I was glad to be able to help.

People here are very, very concerned and it's the main topic of conversation. One thing that struck me, watching the TV reports, is what swell people we have in the Bay Area. I remember reading reports of merchants in Hugo country refusing to take credit cards, jacking up the prices on supplies, etc. In the Bay Area, everyone immediately started helping out other people. People pooled their food and had barbecues.

398, 196 of 455: Johan Strandberg (johan) Wed, Oct 18, 1989 (14:04)

I and my wife Laura are OK down here in San Jose. Strangely enough no damage at all to our house. I was on the front lawn when it happened, trees and buildings swaying. Helped neighbors shut off gas. Organized neighborhood kids to go and check all the houses in the immediate neighborhood. Set up a radio on the front lawn to get information out. Opened up our trailer and set up a TV and 12+ chairs on the lawn for the neighbors. Had a barbecue after we found out that everybody in our area was OK except for the need to be with other people. Ended up with a pile of people on our front lawn sitting watching as the news rolled in. Kids sleeping on blankets on the lawn. Laura and I spent the night in the trailer. Nobody hurt here... amazing.

398, 218 of 455: Robert Rossney (rbr) Wed, Oct 18, 1989 (15:13)

At 5PM I was installing Advanced Revelation on my PC's hard disk and running into problems. Then the room started swaying. Perry and I looked at each other. "Wow, that's kind of cool," I said. But it kept going, and soon the room was pitching back and forth. The UPS attached to the Prime came on and the lights went out, and we started to hear crashing noises, so rather than watching the disk drives crunch into each other, we went for doorways and desks. The lighting fixtures fell off the ceiling and the bookshelves tumbled over.

When it stopped, Perry went and hit the alarm cutoff button; the UPS's alarm is this high-pitched squeal that makes your fillings hurt. I was hoping that the quake didn't set the Halon system in the computer room off. thinking, boy, this is some mess, I'm not gonna get out of here until late tonight.

Walked out into the next office. Partitions down everywhere, lighting fixtures down, dust everywhere. Through a window I could see downtown SF with huge clouds of dust rising from the streets. Part of the brick wall of a building next door was missing. My boss was walking around telling everyone to get out of the building, so we went down four

flights of very dark stairs. Water was running down Bluxome Street, and we had to jump over the stream to get to the parking lot, which seemed to be where everyone was congregating. We were doing head counts, trying to make sure that everyone made it out of the building OK.

About this point we noticed that the entire east wall of the building from about the middle of the second floor up, all brick, had fallen off into the street. There had been cars parked there before the quake, but now there was just a pile of brick. The fire department got people to help clear the bricks away, but once they got a look at what was under the bricks they told everyone who wasn't an emergency worker to get away. "Get away from the building!" said one of the firemen. "If there's another shock it's coming down!"

...It was getting dark. We didn't really want to drive across the city to Jane and Derek's house, but then we heard on the radio that the Major Legal Services building at 6th and Bluxome had collapsed and six people had been killed. All of a sudden it was really important to get to a telephone, because all of our friends who didn't work at Major knew we worked there.

When we finally got to Jane and Derek's and checked for gas leaks and found flashlights and candles and got a dial tone on the phone it was ten o'clock. I called home and Sonia answered. She had heard that the Major building collapsed at around 7:30 and had been in a panic since then. I don't think anything has ever been as important to me as making that phone call.

Early this afternoon I took BART back to Rockridge. Our place is fine. Two coffee cups fell off a shelf and neither of them broke. At this point it looks like I'm good and unemployed, since I bet they just tear that building down in place. So I lost my Danish book bag, my beat-up pair of Reeboks, two apples, and my copy of *Ratner's Star*. Big deal.

I just got off the phone with my boss, who has been spending his day talking with Pac Bell, PGE, and Prime. It's very likely that my company will start up operations at its old offices at 444 Townsend (undamaged except for broken glass) next Monday, and that the 200+ employees of Major Legal Services, myself included, still have jobs. Ron (my boss) went back into the building at 6th and Bluxome and managed to find our tape backups before the police threw him out, for which he deserves some kind of medal.

Incidentally, contrary to an earlier posting, the building at 6th and Townsend did *not* collapse. I know, I was in it. Its eastern wall fell into the street, killing several people, and they're almost certainly going to tear it down, but it's still standing.

398, 295 of 455: Robert Rossney (rbr) Wed, Oct 18, 1989 (21:54)

My cousin Geoff told me a brief saga of driving down to San Jose for a 5:30 meeting at his client's motel. First he developed trouble with his steering (at about 5:04 pm), then he ran into terrible traffic, then he couldn't get through to his client via cellular phone, then he got to San Jose and all of the traffic lights were out, and he STILL didn't get the message.

He finally got to his client's room at the Travelodge, all out of breath and ready to burst from the frustration of this particular nightmare come true, and his client welcomes him in, says "Have you heard what's happening?" and showed him the burning and rubble on the TV.

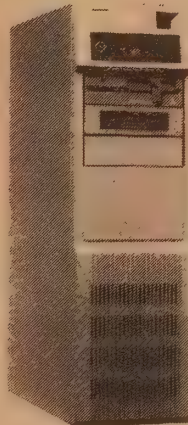
"Was there another coup in Panama?" ■

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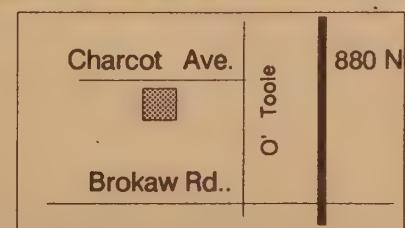


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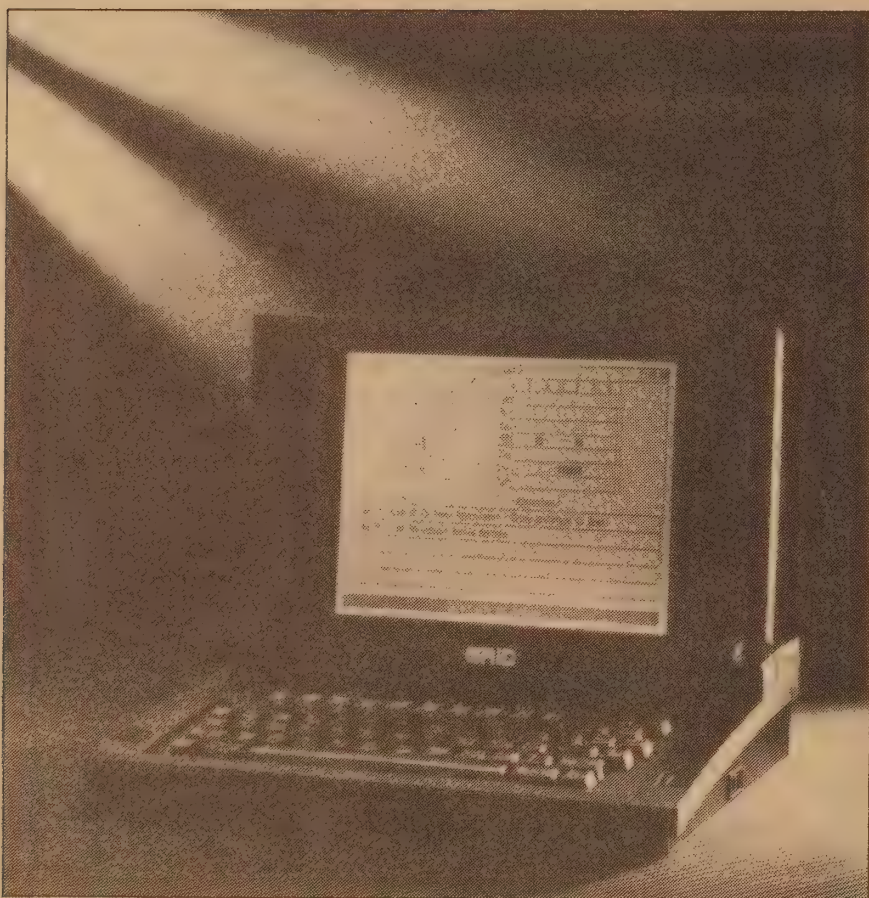
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The GRiDLITE XL

Plenty Of Options

By Ed Kahn



The GRiDLITE XL laptop weighs only 9 1/2 pounds and features a high contrast black-on-white reflective display.

GRiD Computers have long been known for high quality and innovative design. Their newest entry, the extra light XL, is no exception, filling a gap in GRiD's product line.

The unit offers a very clear black-on-paper-white display and a comfortably low weight of 9 1/2 pounds. As one might expect, there are trade-offs in order to bring the bulk down this far. The computer is run by an 80C86 processor—adequate for most applications, but definitely not a speed demon.

Nevertheless, GRiD offers one of the most powerful computers in its weight class. This is far from an entry level laptop. The rechargeable battery will operate for three to four hours, depending upon configuration and use. Additional battery packs should be available from Radio Shack, as this rechargeable battery appears to be the same as used in the Tandy portable.

The basic unit, which carries a retail price of \$1950, has 128 K of RAM and one 3 1/2" double density floppy drive. There are, of course, serial,

parallel, and RGB ports.

Fortunately, the machine can be ordered in much more powerful configurations. An extra \$300 will get a full 640 K RAM. An additional megabyte of RAM, configured to the EMS 3.2 specification, costs nearly \$500.

The Screen

The screen is the most innovative aspect of this computer, reflecting the public's broad acceptance of black-on-white displays. Although many of the most expensive computers offer black on white, few of the lower-priced units make it available.

The display is clear and crisp, but not backlit. GRiD boasts that the display is highly readable inside and outside, but I found that while the screen is generally easy to read, it is a problem in inadequate light. Many times, I had to really work to read the display. Under normal office conditions, or outside, it is indeed clear.

The display is inside the top cover. I wish they had designed the cover to fold back as far as you like; often I find a need to have covers go all the way down, especially when I'm using an external monitor. In the case of this computer, however, I wanted it to fold back beyond its limit when lighting conditions were not adequate. Contrast and brightness controls help a lot, but as good as this display is, it does not measure up to a backlit display. The tradeoff is that it is a good deal less taxing on the battery than the backlit models. If you choose to use an external monitor, however, you are limited to CGA resolution.

Keyboard

The keyboard on the XL is a disappointment for me. GRiD has used a similar keyboard design on most of the models I have examined. The layout is far from being my favorite, with an embedded numeric keypad. Again, this is part of the tradeoff for a small size and light weight. But I really object to a keyboard that lacks the little tactile indicators on the F and J keys to tell you when you're in home position. This is not a consideration

GRiD offers one of the most powerful computers in its weight class. This is far from an entry level laptop

that has anything to do with size—it is simply something the designers do not feel is important enough to incorporate into the keyboard.

Options

But despite these disappointments, there is much to like about the GRiDLITE XL. They have provided a powerful computer with the ability to hold a decent amount of memory in an innovative design. The computer has room for only one disk drive. The standard unit comes with a 3 1/2" double density drive. This means you can use either standard 720 K or 1.44 Mb disks.

If you order the model with the optional 20 Mb internal hard disk (\$1,175), however, you will find the configuration a good deal more interesting. In that configuration, there is no floppy drive.

When I unpacked the computer and began to set it up, I reached for the floppy drive to install *LapLink III*, the transfer utility I use these days for copying files from one machine to another. At first I thought they had installed a cover over the floppy drive. Finally it dawned on me that there was no floppy drive in this model—just the hard disk.

When I got around to reading the documentation, I realized that GRiD carefully designed the unit this way to cut down on weight, and that they've made a lot of provisions for using a

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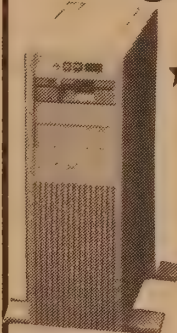
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computer with no floppy drive. First, you can buy an optional 3 1/2" drive (\$350) that not only can take both the standard and dual density disks, but gets its power supply directly from the XL. This makes it easy to install and use when you need.

But if you don't buy the second drive, there are still a number of clever options that will make the use of the computer easy. The hard disk comes formatted and ready to go. DOS utilities are already installed, so all you have to do is load the application programs you want. GRiD sells *PC Master* (\$60), which includes a cable and diskette; it will allow you to copy files to and from another PC. I used *LapLink*, because it is so easy that I could find no reason to look further.

LapLink is fast and efficient. What I especially like is that you can connect through the parallel ports for super-fast transfers. The most interesting feature of *LapLink III*, however, is that if you connect through the serial ports, you can clone *LapLink III* onto the second computer. After doing that, I changed the cable back to the parallel ports and instructed the program to transfer everything that was on my old laptop—except the DOS

files, *command.com*, and the *autoexec.bat* file—to the GRIDLITE XL. Clearly, this machine, with the hard disk, is designed to be used in connection with another computer.

The hard disk is the latest in compact design made specifically for a portable. The 2 1/2" drive is fast and weighs only nine ounces. In addition, it features a design called "ramp loading," which means that the read head cannot make contact with the disk itself when the drive is turned off. This pretty much removes the danger of damaging the hard disk through movement when carrying the computer around. For someone in the field, the tradeoffs are well worth it.

Another option GRiD provides is the ability to install software on ROM cartridges. These cartridges plug into sockets that are easily available to the user. There is room in the computer for up to eight of these chips. A number of applications are available in this format.

Furthermore, you can have cartridges custom-made. This might be practical for a sales force where every member used the same basic software. In the floppy drive model, it becomes quite a versatile machine if

you have all of the applications and DOS on ROM cartridges. By inserting a single 3 1/2" diskette, you can easily store all data on this removable medium.

GRiD has so many options that you must order your computer a la carte. DOS costs \$200 on ROM cartridge and \$150 on diskette. In an attempt to keep weight down, GRiD has had to make a lot of small concessions. But the unit works perfectly.

There is only one serial port. If you install a modem, you must tell the computer through a Mode command that it should recognize the modem in lieu of the serial port. You must issue another Mode command when you want to go back to the serial port. If you alternately use both the modem and the serial port, it is necessary to make sure the computer is set up for either the modem or the port before each use. This 2400 baud modem, by the way, is as fine as you can get. GRiD offers two models. The basic 2400 baud unit (\$595) is a simple Hayes compatible model. The MNP modem (\$695), however, offers MNP error correction and compression. For the extra hundred bucks, this is clearly the way to go.

Conclusions

GRiD has a definite market in mind for its products. And while the computers are not inexpensive, GRiD offers full support for all of its products, as well as optional service contracts that guarantee that you will not have a long downtime in case of problems.

The computer I used had 640 K, the MNP modem, DOS 3.3, the hard disk, 1 Mb RAM, and a carrying case. The price tag for this package is about \$4,675. The list of accessories for this computer is long and extensive, so it should be possible to get this unit set up just the way you want for your particular application. ■

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Resources:

GRIDLITE XL \$1950
GRiD Systems Corporation
7211 Lakeview Blvd.
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LapLink III \$149.95
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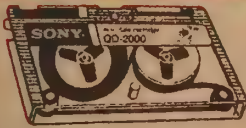
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BUSINESS COMPUTING

BY SUZANNA MUSICK

Standards In The Office

File-Naming Conventions And Why You Need Them

About a month ago we hired a new computer consultant. Previously he had been an independent contractor who specialized in installing accounting software, so he naturally fits right into our department.

Here's the rub. Recently he wrote a proposal for a new client and I went to edit it, but, much to my chagrin, I couldn't find the file. Now I haven't had to deal with this issue in so long that it really made me think about how important it is to account for where your files are located on your computer. This is accomplished by creating standards that everyone can live/write by.

Whether you have one computer or hundreds of computers, creating and enforcing file-naming

I find that even on my own personal hard disk, as opposed to our network, I have a hard time remembering what I named a file even just a few weeks before. And with only eleven characters to use for word processing and eight for spreadsheets (on the PC, anyway), you have to be pretty creative in naming your files.

In our office one secretary works for a number of different people. He or she is assigned to a department, not to a person. For instance, we have an audit secretary, a tax secretary, a litigation secretary, and a secretary shared by consulting and human resources. When one secretary is swamped, another will help out, and even the receptionist has a computer to help prepare documents.

With all of these people sharing administrative support, we had to devise a way of locating documents once they were created and saved. I thought that by using our firm as an example and explaining how we have managed to keep track of our documents, I'll be able to give you some ideas on how to manage your own.

A Real-Life Example: What We Do And Why

Actually, we have more than one standard in our office. For audits and other similar work that is performed year after year for the same client, the files are named with the first six characters of the client's name, the next two characters designate the year, and the extension is used to indicate the type of work. For example, Smith, Jones & Davis's 1988 financial statements are named "SMITHJ88.FS." The engagement letter is filed under "SMITHJ88.ENG" and the management letter that accompanies the financial statements can be found under "SMITHJ88.MGT."

In addition to the original copy on the audit secretary's hard disk, another copy is stored on a floppy disk. A separate floppy disk is kept for each client and filed alphabetically. All files relating to that client are stored on that disk and are available should anything happen to the copy on the hard disk.

The auditors use our *focus:ABC* audit program to perform the field work for the client. The program is loaded on a portable computer and taken to the client's office while the work is being done. Any audit software program is setup-intensive. It can take ten to 15 hours to initially enter the client's

It was when we installed the network and wanted to share more information that standards became absolutely necessary.

chart of accounts and beginning balances before the audit work actually begins. Once the audit is complete and the final journal entries have been booked, it is not unusual to have up to 20 hours' worth of time invested. You can see why we want to easily locate these data files when the audit begins again next year.

To facilitate this, audit data files are labeled and filed similarly to the secretary's documents: the first six characters of the client's name, and then the year. Since *focus:ABC* is a Lotus template, all of the files have the ".WK1" extension. Once the audit is complete, two copies of the files are made off of the hard disk onto floppy disks. The files on the hard disk are then erased to make room for another client's data. One set of floppy disks is kept in the client file with the work papers; the other is a backup and is stored alphabetically by the receptionist.

Miscellaneous letters, memos and other documents prepared for the directors, managers, and other staff members are given an eight-character description as a name; the extension is the originator's initials. One director likes all of his files named with the date, so for him a memo created on October 15, 1989 would be named 101589MM.WRP. A letter would be 101589LT.WRP.

Personally I don't find this approach very convenient. I rapidly forget when I wrote a letter, but I seldom forget who it went to or what the subject matter was. That brings us to the standards used to account for files in the consulting department.

Since we will not start a project until we have a signed engagement letter, we are constantly writing

Whether you have one computer or hundreds of computers, creating and enforcing file-naming conventions and storage standards is a matter that deserves serious consideration.

conventions and storage standards is something that deserves serious consideration. The computer revolution was largely ushered in by word processing and electronic spreadsheets. The beauty of these applications is that they give us the ability to correct, expand, contract, rearrange, modify, add, delete, etc. the work we previously produced. But only if we can find the original file.



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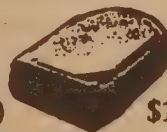
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engagement letters. These proposals normally include a budget that we have created in *Lotus* or *Excel*. In addition, we write status and/or management letters, we create needs analysis documents, and we write operating procedures for the specific accounting software programs we support.

We store all of these documents on our network so that we all have access to a client's files at any time. In fact, it was when we installed the network and wanted to share more information that standards became absolutely necessary.

Normally we create a draft of the engagement letter; then our secretary retrieves the document, formats it to our standards with the correct margins, fonts, spacing, etc. In order for her to quickly locate the file, we use a system similar to that of the other secretaries, with some minor modifications.

By the nature of our business, if we do a good job of consulting, we work our way out of the client's office. We seldom work on the same client year after year. For this reason, we use all of the eight characters available to designate the client's name for the file. The three-character extension tells us whether it is the engagement letter (".ENG"), a status letter (".STA"), or an invoice (".INV").

Since the extension is not available with *Lotus* or *Excel*, all budgets start with a "B" followed by the first seven characters of the client name, e.g., "BSMITHJO." These files then either have a ".WK1" or ".XLS" extension. The same is true for needs analyses worksheets, only we substitute a "N" (to indicate it is a needs analysis) for the "B." All of the client documents are stored together on the network in a separate directory called "CCS" (Computer Consulting Services). Now, with this knowledge in hand, any consultant or secretary can find a client

file with ease.

The accounting software operating procedures are stored in a separate directory (and a separate virtual drive). Since we write procedures for each separate function (or module), and since every program has many of the same functions, we have devised a way to keep these organized.

To start with, the first two digits of the file name represent the module, e.g. "AP," "AR," "GL." The last six digits of the file name are used to describe the procedure, e.g. "DAILY," "WEEKLY," "EOM" (end of month), etc. The three-character extension is used to designate the software program; ".SOL" indicates *Solomon* procedures, ".PLA" is *Platinum*, etc. Now when we see a file name "APEOM.SOL" we know it is the accounts payable end-of-month procedures for *Solomon*.

Often we customize these procedures for a specific client. When we do this, we change the extension to represent the client's name. Since we know what software the client is using, this method preserves the description of the particular function. In this example the file name would be "APDAILY.SMI" for Smith, Jones & Davis's accounts payable daily operating procedures.

Conclusions

While no one rule will work for all situations, we strive to keep our standards to a minimum. If you keep your standards as simple and meaningful as possible, they will not lose their effectiveness by being too difficult to remember.

Once we examined the type of documents we were creating and decided on our standards, we wrote up a document explaining how they work. Now when new employees start work, they are

The point is, if you lose track of a document, you really aren't any better off than if you have a fancy typewriter.

given that document. They may forget once or twice, but soon they learn the system and see the value of everyone using the same conventions, and finally—presto—we have ended the search for lost files.

Our firm is fairly large and diverse in the type of work each department produces. I completely skipped the Tax Department's standards in this article, but you get the idea. Look at the type of documents being created by your company. Put some ideas down and circulate them to the people who will have to conform to these standards. In the process, someone may spot a reason why a certain pattern will not work, or will have a better idea about how to structure the file names. It took us some experimenting to finally work ours out to where it now runs smoothly.

The point is, if you lose track of a document, you really aren't any better off than if you have a fancy typewriter. And the faster you can locate that particular file, the less frustrated and the more productive you and everyone else will be.

Until next month, happy computing. ■

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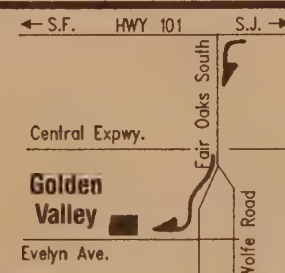
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BY WAYNE YACCO

Buying The Right LAN, Part II

Last month we started this series on buying LANs for IBM personal computers or compatibles. In Part I, we looked at two acquisition strategies and began an example based on one of them which considers how the line of Novell NetWare might satisfy various system requirements. That installment covered ELS-1.

The series concludes by examining the remaining Novell alternatives and some additional considerations beyond basic system requirements.

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SFT NetWare \$4,995 (System Fault Tolerant version)

NetWare 386 \$7,995 (250-user, several times faster, radically enhanced)

ELS-2

With the (precisely) right hardware and DOS combination, ELS-1 can be a very attractive entry to Novell networks.

If, on the other hand, you need support for up to eight simultaneous users and almost all of the features of Advanced NetWare, those capabilities are available in ELS-2. That's the system that MAS's Lasman recommends as a substitute for ELS-1. He feels that it eliminates virtually all the risks of incompatibility and still has a reasonable price.

ELS-2 supports more operating systems, adapters, hard disks, and controllers. It adds support for Token Ring, as well as LocalTalk and EtherTalk for Apple Macintosh computers and LaserWriters. Workstations can run all DOS versions over 1.x and all versions of OS/2. (Some add-on software is required to support OS/2 or Mac workstations—just as it is with Advanced or SFT NetWare.) Asynchronous communication (COM1 and COM2) is supported. There are provisions for resource accounting, network security, and basic system-fault tolerance (including read-after-write verification, duplicate directory structures, UPS monitoring, and on-the-fly compensation for media flaws). It's a nearly complete network, with the exception of supporting a very limited number of users. It also costs almost three times as much as ELS-1.



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Advanced NetWare

This is the version of NetWare that software developers are most likely to use when they write and test their code. Advanced NetWare provides the features of ELS-2 for up to 100 users and can run all DOS versions over 1.x, all versions of OS/2 and PC-MOS/386.

Commensurate with its support for larger numbers of users, Advanced NetWare also has features that provide more control over network resources. It is a level that must be considered when maximum hardware compatibility, support for all NetWare-compatible software, or support for large numbers of users is required.

SFT NetWare

SFT offers the features of Advanced NetWare with the addition of extreme fault tolerance. It provides disk mirroring and duplexing, which write every transaction to two disks simultaneously over separate channels. This feature greatly reduces the likelihood that drive or controller errors will affect the integrity of data. If you must have greater assurance of data integrity, SFT is the best that Novell has to offer. It provides a relatively high level of protection from all likely risks.

NetWare 386

NetWare 386 has just been released, and although it is up to three times faster than other levels of NetWare and supports up to 250 users, it only runs on an 80386-based machine and still doesn't have a broad range of drivers.

However, it will eventually have the widest range of network support of all versions of NetWare. Nodes will be able to operate under a variety of client-server protocols, including DOS and NetWare Core Protocols (NCP), OS/2 and the Server Message Block (SMB), the Macintosh operating system and AppleTalk Filing Protocol (AFP), and UNIX with the Network File System (NFS). And the user will be able to add support for LAN and disk drivers, protocol stacks, and server utilities dynamically—without interrupting ongoing processes on the network.

In the first quarter of 1990, Novell will begin implementing its Open Protocol Technology (OPT) with the delivery of NetWare 386 version 3.1. OPT is a major advancement and part of a protocol engine which will dynamically manage most widely used protocols and allow communications among them. Interprocess Communications (IPC) protocols, including SPX, NetBIOS, Named Pipes, Transport Level Interface (TLI), Berkeley Sockets and APPC will all be supported. So will multiple transport protocols such as IPX, NetBEUI, AppleTalk, TCP/IP, SNA and OSI.

It remains to be seen how efficient the system will be in managing all of these activities, but this will be the version to choose if you need integrated access

to resources from a wide variety of networks, hardware, and software platforms.

Plan For The Future

Shop not only for the system you need today but for the system as it will develop over its useful life. There are two important considerations that inexperienced system managers sometimes overlook: growth and turnpike effect.

Networks often evolve, add users, and become more difficult to manage. Ask users to consider growth when they estimate their needs, and then add 10 or 15 percent to the estimates to allow for turnpike effect. (Turnpike effect is the phenomenon in which the unexpected utility of a resource leads to more use than was originally forecast. It is named after the road-building projects, where it was first formally noticed, but it also commonly occurs when systems are computerized.)

Be sure there is an upgrade path if you plan to buy fewer resources than you will need when the system is mature. Then, compare the cost of a future upgrade with the cost of buying now the system into which you expect to grow.

For example, say you consider beginning with ELS NetWare, but your system is likely to outgrow ELS limitations before your network becomes obsolete. (All of Novell's ELS NetWare is designed with an upgrade path.) You should compare the cost of your prospective upgrades with the cost of starting with a more feature-laden system.

Be sure to include financing costs and the time value of money in your assessment. If it is possible that your system will grow rapidly and dramatically, you may want to use a more sophisticated evaluation that considers the expected value of alternative growth scenarios and the timing of various acquisition programs.

You're On Your Own

One of the problems in putting together any system is that salespeople have a natural aversion to emphasizing the negative. (After all, how many sales would they make if they listed a product's every limitation?) And they don't know every detail of your application, so they can't always selectively mention the limitations important to you.

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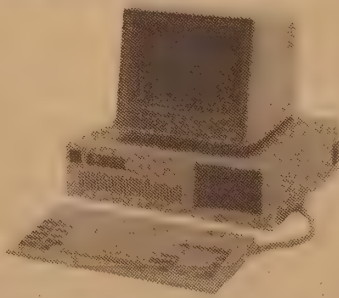
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BY BENNETT FALK

Table Manners: Resource Sharing And The Dining Philosophers

At the center of a round table in a faraway boarding house, there is a large bowl of steaming rice. Around this table are five place settings, and behind each place setting sits a philosopher. Five chopsticks, one between each pair of place settings, are the only utensils at the table.

The five philosophers lead a simple life: they spend their time thinking and eating. Of course, a

Successful multi-tasking requires that the CPU's undivided attention be given in short bursts to each process in succession. The scheduler's job is to manage these context switches to avoid the same problems that plagued the dining philosophers: deadlock and resource starvation.

philosopher who wishes to eat must first have in hand two chopsticks, and the etiquette of the boarding house requires that the hungry philosopher pick up his chopsticks in a seemly manner, one at a time. Indeed, rude behavior of any sort is frowned upon: there can be no grabbing of two chopsticks at once, no breaking of a single chopstick in two, no passing

of chopsticks around the table, and no eating with fingers.

Several things are clear about this peculiar lifestyle. At any given moment, no more than two of the five philosophers may eat. The arrangement of the chopsticks around the table ensures that when one philosopher is eating, neither of the philosophers seated next to him can pick up enough chopsticks to begin eating.

Naturally, the philosophers have their share of problems. If each of them picked up a single chopstick and refused to let it go, no one at the table would be able to eat. In the computer trade, this situation is called a "deadlock." In the philosophers' case, preventing deadlock is relatively easy. They must simply learn and live by certain rules: "Never pick up one chopstick unless both are available" or "If you have one chopstick in hand and the other is not available, put the first chopstick back on the table."

By treating with care the business of picking up chopsticks, the philosophers avoid deadlock. No one can allow himself to be distracted while picking up a chopstick or to hold on to one chopstick while there is no prospect of picking up another.

But even after they have taken precautions to avoid deadlock, the philosophers face other problems. How, for example, can the five chopsticks be shared so that no one at the table starves to death? More information about the philosophers themselves is required for a solution to this problem. Are the philosophers all the same size? Do their nutritional requirements vary? How well do they perceive and express their own needs? And are they all equally adroit with chopsticks?

The Dining Philosophers Problem was proposed nearly 25 years ago by Edsger W. Dijkstra to illustrate some of the issues involved in coordinating computer processes that must share resources. Dijkstra's philosophers are thinly disguised autonomous processes in a computer; the etiquette they employ to prevent deadlock consists of algorithms, and the chopsticks are any computer resource the processes must share.

Nearly five years after the first appearance of the Dining Philosophers problem in computer literature, the first UNIX system was introduced, and with it, a certain way of scheduling the use of computer resources.

The Scheduler

UNIX is, above all, a time-sharing system. Its basic premise is that, on a multiuser computer, processor

For the person at the keyboard, the activity of the UNIX scheduler is dreary, bloodless stuff, and anyone who uses UNIX and has a lucky star should be thankful that the scheduler works behind users' backs.

(or CPU) time is most efficiently managed by a constantly-running scheduler that monitors the priority of all the processes on the machine and ensures a fair distribution of the available resources.

The scheduler is a portion of the UNIX kernel that determines which of all the processes running concurrently will get the use of the CPU next. At any given instant, only one task will be running on a CPU. Successful multitasking requires that the CPU's undivided attention be given in short bursts to each process in succession. The scheduler's job is to manage these context switches to avoid the same problems that plagued the dining philosophers: deadlock and resource starvation.

The scheduler in the UNIX kernel tries to achieve these goals by ensuring two things: that the process chosen to run at any given instant is the process with the highest priority, and that all processes have a chance to use the CPU before any process repeats as the active process.

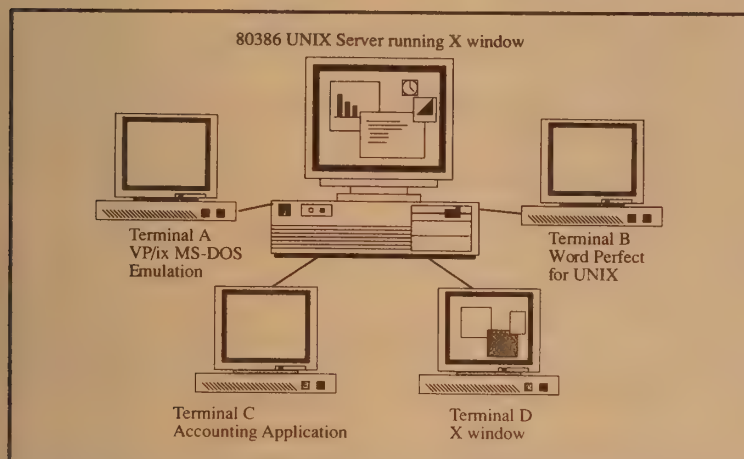
The scheduler gives each process the use of the CPU for fixed a period of time. The length of this "timeslice" varies with hardware architecture, but the timeslice on any CPU is the same for all processes. A process can give up the CPU voluntarily before the end of its timeslice if the process receives an interrupt, or if it needs to wait for some other operation (such as a disk read or write) to complete.



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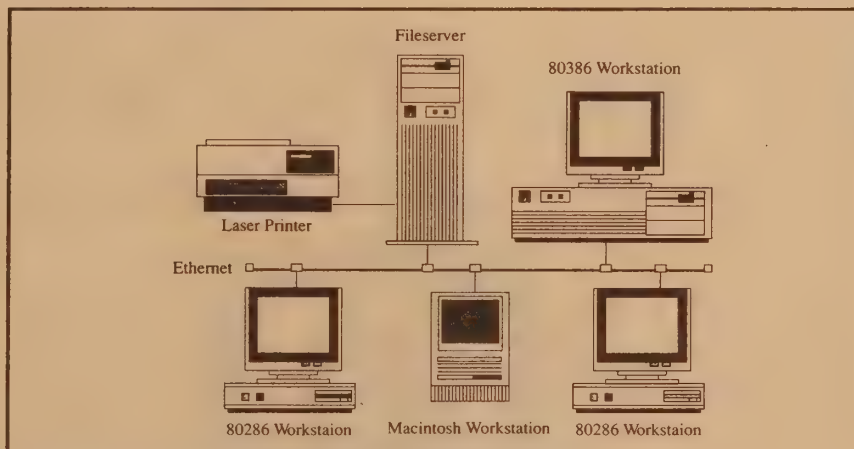


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At the end of its timeslice, however, a process must give up the CPU even if it could continue execution.

Because the UNIX scheduler can force processes to give up the CPU, it may be said to be "pre-emptive." However, it is important to note that the scheduler can only pre-empt a process because its timeslice is used up. (In a real time system, a "pre-emptive" scheduler should be able to evict processes for other reasons as well.)

When the scheduler evicts a process, it takes stock of what the evicted process was doing, assigns it a priority, and puts it on a queue of processes waiting for the CPU. The scheduler then evaluates the priorities of all the processes in this queue and chooses which one will use the CPU next.

The system of priorities used by the scheduler is complex. To begin with, UNIX processes are constantly moving back and forth between two "modes" of execution. A process is in "kernel mode" when it executes a system call. System calls are privileged instructions that give a program access to some hardware resource. When no system call is being executed, the process is said to be in "user mode."

In assigning priorities to tasks running in user mode, the scheduler tries to equalize CPU time: the more CPU time a user process has had recently, the less attractive it is to the scheduler.

Processes executing in kernel mode are treated differently. The scheduler tries to move processes through kernel mode as quickly as possible, and so any process in kernel mode automatically has a higher priority than a user mode process. The goal in scheduling kernel mode processes is to prevent bottlenecks as processes use other hardware resource. For processes in kernel mode, equalizing

CPU time is at best a secondary consideration.

For the person at the keyboard, the activity of the UNIX scheduler is dreary, bloodless stuff, and anyone who uses UNIX and has a lucky star should be thankful that the scheduler works behind users' backs. The one observation worth making about the scheduler is that all it schedules is CPU time. Make no mistake, CPU time is a very important thing to schedule. However, once UNIX has duly noted that a system call is being made on some user's behalf, the operating system schedules the use of the CPU accordingly and inquires no further into who is using how much of what for how long.

This means that a lot of the responsibility for sharing the resources on a UNIX computer is left to the users themselves. Daily, in offices around the country, real people trying to share memory and disk drives and modems re-enact the drama of the dining philosophers and their chopsticks. Some people starve, some subsist, and others grow fat.

One could declare that resource sharing conflicts are nothing more than a computer problem. A different operating system with a more comprehensive algorithm for scheduling everything might solve such a problem. A "personal" computer that need never be shared with anyone might be just the ticket.

But such a declaration would be wrong. The real lesson of the dining philosophers is that something is lost when the issue of resource sharing is reduced to algorithms. A description of the UNIX scheduler is neither as instructive nor as engaging as the story of the philosophers' life-or-death table manners. There is a dimension to the story of the dining philosophers that an account of the UNIX scheduler does not have.

A lot of the responsibility for sharing the resources on a UNIX computer is left to the users themselves. Daily, in offices around the country, real people trying to share memory and disk drives and modems re-enact the drama of the dining philosophers.

The philosophers are a reminder that doing something on a computer really is another form of human behavior in general, and that every decision about what to do and how to do it involves the computer user in ethical questions. Quite apart from its user interface (which is not as awkward as people pretend), there is an "ethical interface" to UNIX that must be mastered. No one can claim to have learned the system until they have learned to get along with the people who use it. ■

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AMIGA

BY MATTHEW LEEDS

Hot New Products

The fall is always an active time for new product releases. Although the Amiga market has slowed down in terms of major new product releases, there are a few still worthy of notice.

Digi-Paint 3

At the top of the list is the long-awaited arrival of *Digi-Paint 3* from NewTek. *Digi-Paint 3* sets a new standard for HAM paint programs. In case you've been living in a tree, the Amiga's HAM mode allows the use of all 4096 colors on the screen at once. The new features in *Digi-Paint 3* include real-time scrolling on superbitmapped screens up to 1024 pixels high or wide (with the new Super Agnus this allows a screen up to 960 X 960), texture mapping with anti-aliasing, an improved user interface, variable dither, anti-aliased fonts and a new font requester, controllable transparency, the ability to change the screen resolution within the program, coordinates, severe overscan for video compatibility, a genlock mode that disallows the use of color zero, brush rotation and tiling, an expanded palette, AREXX support, X-Specs compatibility, and a new utility program—Transfer 24—that supplies the image processing capabilities of *Digi-View* in a standalone package.

The AREXX support in *Digi-Paint 3* extends to the use of script files and even AmigaBASIC program control through the use of a supplied message-passing program. This means that you could automate the addition of text to image files, the changing of an image file's dimensions, or any other function that *Digi-Paint 3* offers.

NewTek has offered an upgrade path for owners of other paint programs. If you own *Photon Paint*, *Deluxe Paint I or II*, *Deluxe PhotoLab*, or *Express Paint*, tear out any page from that program's manual, and send it to NewTek with \$55.95 and you'll get a *Digi-Paint 3* package. NewTek says that this offer expires at the end of November.

Mac-2-Dos

Central Coast Software has released *Mac-2-Dos*, a file conversion utility that lets your Amiga (with the aid of a Mac-compatible drive) read and write Macintosh format disks. If you need to move files back and forth between an Amiga and a Mac, this is the first-class way to do it.

The file conversion options are extensive. You can convert ASCII files, PostScript files, *MacPaint* and IFF ILBMs, and MacBinary files. If you use

ProPage to create PostScript output to disk, you can now transfer those PostScript files to Mac format disks for easier printing at laser parlors. You can also gain access to the huge base of Mac PD clip art files, both bitmapped paint files and PostScript files.

The package includes software and a hardware adapter that connects to the floppy drive port of your Amiga and provides a port for connecting a Mac-compatible floppy drive. A version of the package that includes a Mac-compatible floppy drive is also available. This version of the package includes a device driver that allows you to use the Mac-compatible drive to read and write AmigaDOS disks.

Mac-2-Dos shows the same fine polish that other Central Coast Software packages have. When converting Mac files to the Amiga, you can have an Amiga icon created for the file and set the tooltype so that when you click on the icon, the correct application is run to utilize the file. Conversely, moving from the Amiga to the Mac, you can again create an icon and also set the creator type to call the correct application when you click on the icon.

You can also select a set of files using the mouse or via filenames using wildcards. You can bring up file information on each file, and if it is a text file you can display the text onscreen. You can even format disks in Macintosh format. Naturally, *Mac-2-Dos* supports multitasking, runs on any Amiga, and can be installed on a hard disk just by dragging its icon.

Upgrade plans for the program include support for viewing image files; conversion of PICT/PICT2 format, TIFF format, SMUS/SMF format, RFT/DCA formats, and conversion of Mac fonts and *HyperCard* stacks.

UltraCard

The conversion of *HyperCard* stacks may come in handy, as Intuitive Technologies has released *UltraCard*, a hypermedia information construction environment for the Amiga. Modeled on *HyperCard* for the Mac, *UltraCard* adds color graphics, AREXX support, and multitasking. *UltraCard* also supports the use of laser video players, genlocks, and could provide the cornerstone for an Amiga-based interactive video authoring system.

UltraCard has a long way to go before it can be seen as a counterpart of *HyperCard* on the Mac. *HyperCard* is distributed with every Mac sold; *UltraCard* is a separate product. *HyperCard* is directly supported by Apple, *UltraCard* was created by the same developer who produced *MaxiPlan* (which passed through several distributors and went through far too many bug-fixing releases to be considered a stable product for far too long a time). *UltraCard* holds promise, but it's too early to consider it a serious contender.

If you need to move files back and forth between an Amiga and a Mac, Mac-2-Dos is the first-class way to do it.

ProWrite 2.5

New Horizons has released an upgrade to *ProWrite*, version 2.5. The upgrade includes mixing of printer fonts and graphics on the same page, improved typing speed, interactive spell-checking, user-definable page sizes, toggle-able top and bottom margins, centered tab stops, conversion of linefeed delimited files, a new design to the user interface, and two utilities for converting files from other word processors to *ProWrite* format and for moving fonts and other system files between disks.

The upgrade cost will also include a free upgrade to version 3.0 when it ships. Contact New Horizons for information on upgrade costs.

Commodore's Ad Campaign

The new Amiga ads have hit. If you haven't seen the television ads yet, you are in for a surprise. Produced by George Lucas, these are the most professional ads Commodore has ever released, and should go a long way towards moving Amigas out of the stores and into the users' hands. You should also be seeing the new print ad campaign in most major magazines.

Commodore has spend a bundle on this new advertising direction, and needs to see it pay off. Apple has dropped the ball on the home market, IBM is poised to make a major move in that direction, and Commodore's window of opportunity is fogging over fast. The first calendar quarterly reports should tell the story; let's hope it's a happy ending. ■

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Copyright ©1989. All rights reserved. Matthew Leeds has been involved in the high tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics, and related fields.

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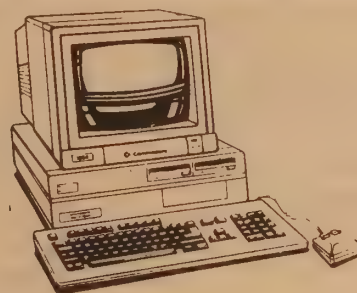
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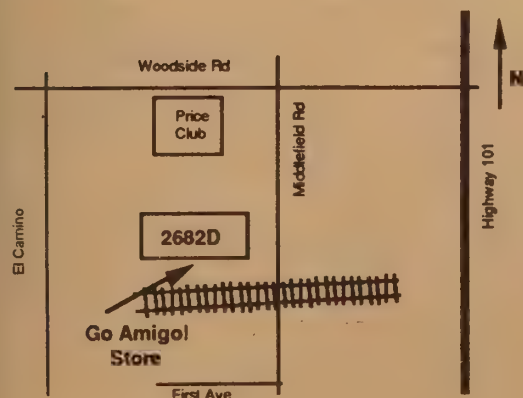
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ATARI ST

BY DAVID HAWKINS

Getting Down To Business

If you read this column on a regular basis, you might get the impression that the Atari ST is mainly for telecom, games, and word processing. Unfortunately, those are my main interests. There are a lot of other good programs out there for the ST that I don't have the skill to review.

For example, the Atari has MIDI ports, and there are a number of good music programs available. I just don't know very much about music. If you've used a music program and recommend it, then write me, care of *MicroTimes*, and I'll mention it in a future column.

Business Software

A wide variety of programs fit under the heading of "Business Software." There are a number of spreadsheets and database programs that can be used in business—as well as word processing and telecom applications. (Trying to justify the purchase of games as a business expense is often futile, however.)

Inventory Control

Keeping track of inventory is a major concern of most businesses. Beckemeyer Development Tools (478 Santa Clara Avenue, Suite 300, Oakland, CA 94610, 415/452-1129) has an integrated series of programs called Business Solutions Series for use in retail business. I'll be referring to the program as *POS*—"Point of Sale."

Inventory control involves knowing what you have sold, what you need to order, and what you have received. *POS* concentrates on the Point of Sale: if you know exactly what has been sold and at what rate, you can make better decisions about what to order.

A lot of small businesses fail because they don't keep track of their money and their inventory. If a program like this will help you get a realistic picture of your company's condition, then it might be a valuable tool.

Managing Data

POS keeps track of a number of files. When an item is sold, a record is made in the Sales file, a note is entered to the Inventory file, an invoice is printed

and recorded in the Invoice file, and the customer is added to the Customer file.

The program keeps track of all of this automatically. It's designed to make it easy for the salesperson to enter the essential data correctly so the files will be accurate at all times. *POS* uses keys for a few simple functions, and those keys are not adjacent, which makes it less likely that the salesperson will hit the wrong key.

Using Data

Other parts of *POS* use the data files to determine when new stock should be ordered, to print out the purchase orders, and to keep track of vendors. *POS* also keeps track of what is owed to the vendors. You can have the program print up various financial statements, which can help give you an accurate picture of the condition of your business.

Security

POS allows you to create separate accounts for the various individuals who will be using the program. The manager of the program has access to all the functions, while the salesperson can only enter sales and make changes in the Accounts Receivable section of the data. A purchasing agent can only use the parts of the program having to do with purchasing and inventory control. Each of the people using the program has a unique password that the manager can assign.

Tips

The *POS* manual includes some advice that is helpful with most applications. Exit the program completely before turning the computer off. Make regular backups of the data files.

Next Step

If you are interested in using an Atari in your business, the next step would be to check with a dealer or a user's group about what would be the appropriate software for you. It's worth the time and energy to check out what is available.

Portfolio

Quantities of Atari's Portfolio are starting to get to the stores. The Portfolio is about the size of a VHS videocassette tape, and the basic unit sells for around \$400. It's a DOS 2.11 system, with several built-in programs. These programs include an address book, a calculator, a diary, text editor, and a worksheet. The address book can dial the telephone for you—just hold it up to the phone and it sends the tones. It's possible to add both a serial and a parallel port to it, as well as memory cards. ■

Inventory control involves knowing what you have sold, what you need to order, and what you have received. *POS* concentrates on the Point of Sale: if you know exactly what has been sold and at what rate, you can make better decisions about what to order.



Copyright © 1989 by David Hawkins. All rights reserved. David Hawkins is the host of the Atari conference on The WELL (415/332-6106); send email to dhawk. He has one of the first Atari ST 1040s sold in San Francisco. Both monitors, an Okimate 20 color printer, and disks all over the room.

Music for your home.

Kurzweil Ensemble Grande Mark III

The first thing you'll notice about the Kurzweil Ensemble Grande Mark III is its elegant styling. Sleek lines and a lustrous dark rosewood finish make this instrument the perfect complement to any decor.

Then there's the weighted, velocity-sensitive keyboard. Its subtle responsiveness leads to a delightful discovery- the Ensemble Grande Mark III feels and sounds every bit as beautiful as it looks. Lush, sonorous string sections. Bold brass. Even majestic, multi-voiced human choirs. Not electronic imitations like you find on most home keyboards, but the finest reproductions of acoustic instrument sounds today. The Mark III, you see, boasts many of the same high-quality, digitally sampled sounds found in the Kurzweil 250- an instrument widely used by both recording studios and performers around the world.

Command Performance

Located right above the Mark III's 88-note keyboard, a streamlined control panel makes it easy to summon any of the instrument's 100 presets. Simply push a button to call up a sound. Then take that sounds and choose any of 9 other variations just by pushing another button. You can further personalize the sound effects like Chorus, Tremolo or Vibrato.

The Mark III even provides preset selections that combine instruments' sounds, such as grand piano on the right half of the keyboard and acoustic bass on the left half. It's multi-timbral too, which means you can play more



than one sound at a time- piano layered with strings, for example. And with 24-voice polyphony, you'll hear sonic depth and complexity like you've never heard before.

The MIDI Connection

The Ensemble Grande Mark III is a wonderful self-contained music system, whether you use its own powerful, high-quality speakers or connect it to an external sound system. But beyond that, the Mark III is equipped with a MIDI interface. MIDI (the Musical Instrument Digital Interface) is the standard that has been developed by manufacturers to allow their products to "talk" to one another. A single cable is all it takes to connect the Mark III to any MIDI-equipped external device, such as a sequencer, computer or other musical instrument- like the Kurzweil Ensemble Expander- for even more sounds.

But chances are the 100 phenomenal sounds and beautiful styling of the Kurzweil Ensemble Grande Mark III will be enough to keep you smiling for a long time to come.

Guitar Showcase

Guitar Showcase offers you all of these great products as well as the technical expertise to operate them. If you're interested in what home keyboards can do for you and your family, ask the professionals in the keyboard department to help you make the right choice. Any music store can sell you equipment, but Guitar Showcase can give you the correct information to enable you to use it properly and will guarantee it for 1 full year parts and labor. You can't get that at just any music store.



Guitar Showcase

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MAC @ WORK

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The Macintosh Portable: First Impressions

By Mike Markowitz

Long-awaited, heavy, and expensive, the Mac Portable is nonetheless an elegant and uncompromising solution.

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BMUG

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New Macs, the World Computer Congress, and more.

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HyperCard

By Birrell Walsh

More on making a buck with *HyperCard*, this time using *HyperDA*.

The Macintosh Portable: *First Impressions*



By Mike Markowitz

With continuing advances in prenatal care, large babies are not so unusual, but Apple's latest newborn weighs in at nearly 16 pounds (7.14 kilograms).

As you might imagine, it was a difficult delivery.

The Macintosh Portable is a product of no compromises—a quality unit at a premium price. Apple was unwilling to compromise on the keyboard, the battery capacity, and above all, the speed and clarity of the display. While it is by no means a power user's computer, it is unquestionably a real Macintosh. Now you can take The Power To Be Your Best almost anywhere, as long as you have The Power To Lift Sixteen Pounds.

Well, actually, you probably can't have it any time soon, but the government agencies and big corporations that signed up in advance for the Portable will be getting a slowly growing trickle of the marvelous machines.

What You Get

The Mac portable includes the 1.4 Mb high-density

The long-awaited Mac portable is an elegant, uncompromising, and expensive answer to the proliferation of DOS portables.

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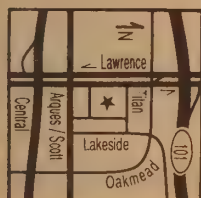
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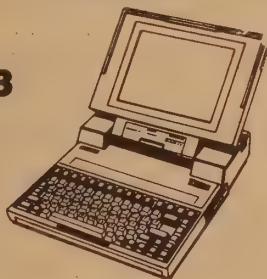
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floppy "Superdrive," and (optionally) a low-power 40 Mb hard drive.

The standard configuration includes a trackball that can be installed on either side of the 63-key keyboard. It took about ten minutes, two small screwdrivers and some sweat to change the trackball from the right side to its proper southpaw location, following the procedure detailed in an excellent *HyperCard* stack that comes with the system.

There were no manuals with our review unit, and none were needed. A numeric keypad can be ordered to replace the trackball, in which case you can use a special low-power mouse that plugs into a standard ADB port.

Other ports include 8-pin serial printer and modem, SCSI, DB-19 external floppy disk, audio, and a new 15-pin connector for an external video adapter unit. The programmer's interrupt and reset switches, which are optional bits of plastic on other Macs, are buttons discreetly hidden on the left edge of the case. (The toggle switch right next to them disables the programmer switches, so they cannot be tripped accidentally.)

You will search in vain for a power switch—to turn the computer on, you simply tap any key on the keyboard. You turn it off in the usual Macintosh way—by selecting Shut Down from the Finder.

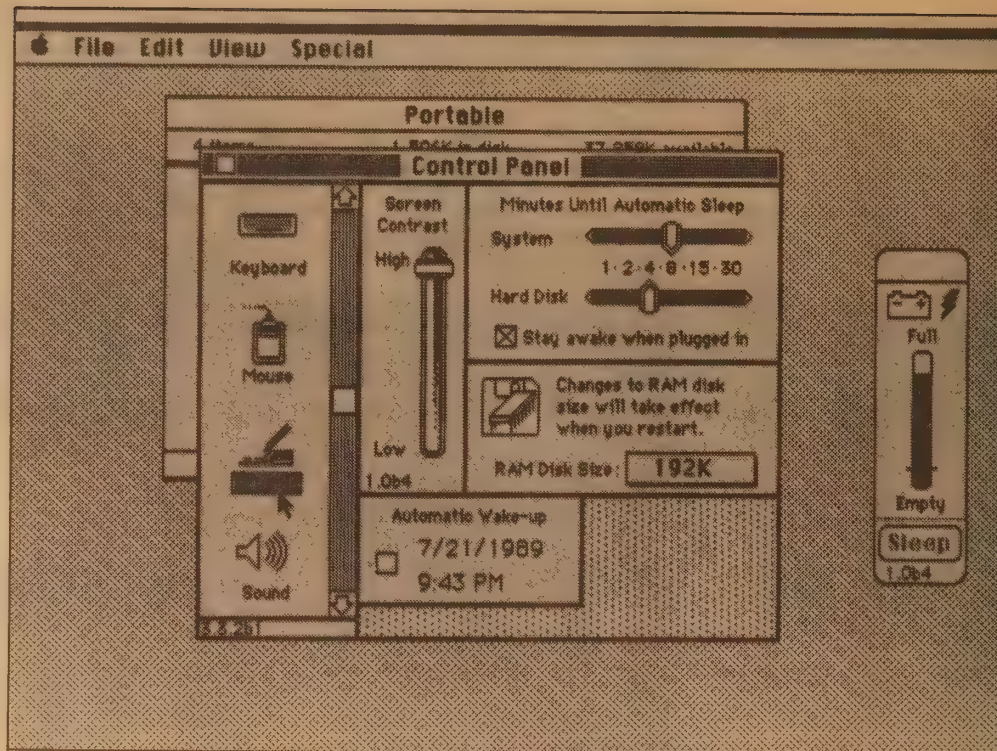
The AC power adapter is a 7-ounce box with a two-prong plug and a 6-foot cable. It delivers 1.5 amps of 7.5 volt DC current to a small circular socket on the back panel of the computer. The Mac Portable recharges its battery whenever the power adapter is plugged in.

The Portable comes with a foam-padded nylon fabric carrying case that includes pockets for the mouse, a spare battery, the power adapter, disks, and papers. The handle and shoulder strap are padded with some soft but durable rubbery material. The workmanship is excellent, but the matte black color is funereal and the distinctive designer look makes the case all too inviting as a target for theft. Zero Halliburton, the famous maker of camera cases for professional photographers, is offering an industrial-strength box for the Mac Portable. If it were my computer, and I had to schlepp it around the world, I'd want a funky old scuffed-up case with a big sticker saying "Medical Specimens" or something similarly repulsive to potential thieves.

According to a review in *Byte* (October) the portable in its carrying case fits easily under First Class and middle Coach seats on a Boeing 727. It would be a tight fit under the Coach window seats and it would not fit at all under the Coach aisle seats. Since most Mac Portable users will be traveling First Class, there's no cause for worry. Apple says that airport X-ray machines used in the United States cannot harm the data in the static RAM or on the hard disk, but older high-power units still found in some foreign airports might zap some bits, so you should request manual inspection.

Software

The Portable has its own special version of the System (6.0.4) and *HyperCard* (1.2.3). These are considered "maintenance updates" to accommodate the special features of the hardware. The hard disk units are shipped with the software already installed.



A control panel window allows you to monitor the Portable's vital signs.

Most noticeable were the Battery DA and a CDEV that provides controls for screen contrast, RAM disk, automatic "wake up" and "sleep" timing. You can set the computer to automatically go to sleep after a variable number of minutes of inactivity.

The hard disk has its own sleep controls. When the system goes to sleep, it retains the contents of memory, but turns off the screen and all other power-consuming circuitry. When the hard disk goes to sleep, it wakes up whenever you save or open a file, but it takes about five seconds to come up to speed. This makes a high-performance hard disk sometimes seem very sluggish.

The Die Hard

According to Apple's Jean-Louis Gasse, "battery paranoia" was a major factor in the design of the Mac Portable. The battery is a sealed lead-acid gel cell that can power the computer for 6 to 12 hours. It can be recharged in about three hours.

Lead-acid batteries do not have the same energy density as the Nickel-Cadmium cells used in most other portables; that means they weigh a lot more for equivalent power output. On the other hand, they are cheaper to make and much easier to live with. Ni-Cads have two particularly nasty features. First, they give a nice, steady voltage right up until they poop out, suddenly and without warning. It is very difficult to accurately gauge the remaining charge in a Ni-Cad battery. Second, they must be "deeply discharged" before recharging; otherwise they gradually deteriorate, losing their capacity to hold a charge.

Lead-acid batteries, on the other hand, have a smooth, predictable voltage drop-off curve. The Mac Portable has a simple Desk Accessory battery gauge, and a four-stage warning system that displays a series of increasingly urgent dialog boxes. When you run really low, the Portable automatically puts itself to sleep, preserving the contents of memory. Lead-acid batteries do not need to be deep-discharged, you can "top them off" at any time, without harming their longevity or capacity.

A spare battery is only \$49 list, and Apple has announced a standalone recharger, so that users can always have a fully charged spare on hand. The top of the case measures about 214 square inches, room for plenty of solar photovoltaic cells, but this would drive up the price another few grand...

The Mac Portable has a simple Desk Accessory battery gauge, and a four-stage warning system that displays a series of increasingly urgent dialog boxes. When you run really low, the Portable automatically puts itself to sleep, preserving the contents of memory.

Display

The screen is a 640 x 400 "Active Matrix Liquid Crystal Display." Every one of the 256,000 pixels on the screen is controlled by its own tiny transistor, making the entire 8 1/2" x 5 1/2" unit a kind of giant microchip. It shows solid black pixels against a silvery background. The screen can display the full width of a standard page. The 72-dot per inch resolution is the same as other Macs.

The screen angle is adjustable over a wide range, and the display is most legible when you have plenty of light coming from over your shoulder. I found it helpful to work in a bold font for maximum readability—you can always change the font back to plain before saving or printing a document.

The handle of the computer doubles as a latching bar for the screen when it is folded down over the keyboard.

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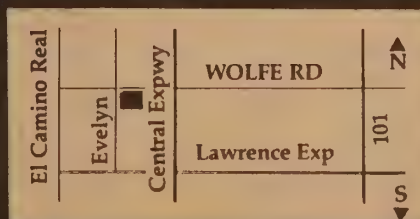
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New Macs Arrive, Apple Axes PX Operation, Publishers Fight Piracy

The ear hears everything, or so my music theory professor told me, but he had never set foot in the BMUG office. Everything is high-pitched and turbo-charged—from the tooth-shaking whine of a formatting SCSI drive to the shouting of Mac-saving details by HelpLine volunteers. Sometimes the walls seem to shake in a sympathetic harmonic vibration—although BMUG seismologists claim this is due to the car wash next door.

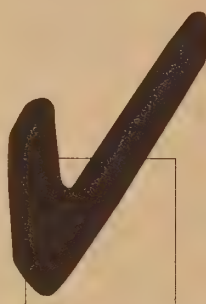
Do What I Mean Department

The unusual is commonplace to the folks answering questions on the BMUG HelpLine. They have heard almost every story in the book and then some. But Mac owners still have surprises up their sleeves. A university student recently called with a problem and reached Steve Costa, BMUG's Technical Wizard.

The caller had an SE/30 with an internal 80 Mb hard disk. He had been using ALSoft's *DiskExpress*, which optimizes the performance of a hard disk by moving and grouping files. Depending on the number of files and size of the drive, this process can take hours. The student had gone off to class, hoping to come back to a hot, prioritized disk. Oooops—when he returned, his dinner was under-done.

The power-strip that the Mac was plugged into was controlled by the room's light switch. When the user's roommate left for the morning, he turned off the lights, cutting the power to the computer! The Mac, like the fridge, or your electric blanket, should not be connected to the light switch.

Interrupting *DiskExpress* is a disastrous thing to do, since it leaves bits and pieces of files scattered around the disk. Always back up your data before using optimizing software. Steve told the student to bring the drive down to the BMUG office, where he



Upcoming Events November is Networking month at BMUG!

November 9—IBM/Sears *Prodigy*.
November 16—Novell Networking stuff, CE Software *QuickMail*.
November 23—No meeting.
November 30—Shiva Networking products, Adobe *Type Manager*.
December 7—Paracomp *Swivel 3-D*, Lecture on Computer-Related Injuries.
December 14—Informix *Wingz*.

would attempt a recovery.

Two hours later, the student walked into the office, reached into his pocket, and plunked the hard disk on the desk in front of Steve. The guy had opened the Mac (or found some tech-minded dormie to do the surgery) and pulled the drive out. "You told me to 'bring the drive,' not 'bring the Mac,'" he said. Pre-law for sure!

Steve claims this has never happened before. When he says to bring the internal drive, be sure to bring the power supply and case (your Mac) along, too.

Congress Is In Recession

Yours truly had the thrill of a lifetime by helping out at the XI World Computer Congress, sponsored by the International Federation for Information Processing. This event is held every three years in some informative city—the 1971 Congress was held in Ljubljana (five points for knowing the country and ten for pronouncing it correctly).

The theme of the Congress was *Better Tools for Professionals*. You had to be a high-level professional programming genius to even stick your nose in the door (or spend the hundreds of dollars to attend the thing). Many of the delegates looked like they were taking advantage of the dozen *technical visits* to Silicon Valley hot-spots, including: Apple, IBM, Sun, and Hewlett-Packard. Even more popular was the *Wine Country Tour* highlighted in the pro-

The BMUG Mac IICx took a real spill as we were loading it up for the weekly meeting. It fell about three or four feet to the concrete. The floppy drive was knocked out of alignment and the case was smashed, but it worked fine for the evening. What other user group crash-tests their computers? Computers that we've paid cash for, even!

gram. Are two-fisted drinkers parallel processing?

This is heavy academic computer science stuff—Architecture, SuperComputers, and Software Engineering. I was a room monitor for a bunch of sessions, including *The Application of Multicomputers to Large Scale Dynamic Simulation in Chemical and Electrical Engineering*. Say What?

Even in this heady atmosphere, I met a couple of



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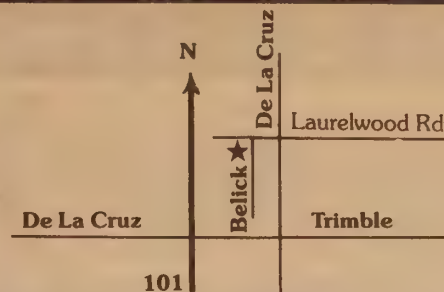
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- MYLEX 386 Motherboard (20 MHz) w/1 MB On Board (64K RAM Cache)
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MYLEX 386-AT (25 MHz) SYSTEM

(Landmark = 37.1)

- MYLEX 386 Motherboard w/1 MB On Board (64K Static RAM Cache)
- And Common Features

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MYLEX 386 (20MHz)*	1099
MYLEX 386 (25 MHz)*	1550
Precision 386 (20 MHz)	650
Precision 386SX-16	335
NEAT 286 (16MHz)	385
NEAT 286 (20MHz)	425
286 (12MHz)	195
286 (10MHz)	185
XT Turbo	65
*w/1 MB DRAM	

HARD DRIVE

ST-238R (30MB)	\$215
ST-225 (20MB)	195
ST-225 (20MB) Kit	245
ST-251-1 (40MB)	345
ST-4096 (80MB)	545
Toshiba T134FA (42 MB)	415

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TEAC 1.2MB FD	80
TEAC 720KB FD	75
TEAC 1.44MB FD	85

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COLOR (CASPER/SAMSUNG)	229
EGA (CASPER/SAMSUNG)	340
NEC Multisync 3D	620
Relisys VGA	350

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COLOR GRAPHIC w/Printer	45
EGA CARD	125
VGA CARD-16 BIT	155
AT FD/HD CONTROLLER	85
DTC 7287 FD/HD CONTROLLER (1:1 RLL)	145
DTC 7280 FD/HD CONTROLLER (1:1)	115
AT I/O (1s, 1p)	35
AT I/O (2s, 1p, 1g)	46
XT FLOPPY CONTROLLER	18
XT HIGH DENSITY FLOPPY CONTROLLER	55
XT I/O CARD	40

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KEY TRONIC (101-key) XT/AT	\$49
MAXI-SWITCH	59
101-KEY XT/AT	35
HOTECH-101 (CLICK)	39
KEYCAT w/DRIVER & SOFTWARE	75

Prices subject to change without notification

POWER SUPPLY

150-Watt	\$36
220-Watt	49

CASE

XT CASE	\$29
AT Deluxe CASE	52
AT CASE w P/S (SFP)	105
TOWER CASE w P/S	185

PRINTER

Panasonic 1180	\$175
Panasonic 1191	225
Panasonic 1124	315
Panasonic Laser Partner	1295
Star NX 1000	165

MISCELLANEOUS

80287-10	\$220
80287-8	195
8087-1	165
8087-2	130
DRAM	CALL
80387-16/20	335/365
MOUSE (Logitech Serial)	65
MODEM 1200 (Int)	65
MODEM 2400 (Int)	95
MS DOS 4.01/3.3	65/55

brave BMUG members. They weren't put off by speakers who insisted that the minimum hardware configuration for productive work is 32 Mb of RAM and a gigabyte of storage. BMUGers use all sizes and brands of computers anyway—a recent meeting poll showed two Cray supercomputer users in attendance.

Here are the highlights from the exhibitor booths:

- The biggest booths were not sponsored by companies, but by governmental trade organizations. The Institute for Information Industry (I.I.I.) of Taipei, Taiwan, showed its computer-aided software engineering (CASE in the lingo) tool, *Kanga Tool*. Definition of I.I.I.—the sound a programmer makes when the pet kanga pulls the plug on the ten hours of unsaved work.

The booth by the European Communities had the best, and longest, acronyms. They insist on giving people and programs Scrabble-winning titles and names. The Director for Exploitation of Research, Technological Development, Technology Transfer and Innovation might tell you about the European Strategic Programme for Research and Development in Information Technology (ESPRIT), and Food-Linked Agro-Industrial Research (FLAIR).

A couple of programmers from London were showing an expert system with a graphical interface, *Expert-System Builder 96*. It was running on a Texas Instruments MicroExplorer—never heard of it? The MicroExplorer is a Mac II setup with a Lisp artificial intelligence NuBus card built in. The guys really should have been at the International Joint Conference on Artificial Intelligence in Detroit. Where would you rather go, Detroit or San Francisco? You don't need artificial intelligence to figure that choice!

- Oracle was showing its HyperCard-based *Application Generator* and *Hyper*SQL*. This software allows Mac users to easily use data stored in big mainframe computers. They also have ways to include SQL commands in 4th Dimension, SuperCard and C programs.

- Fujitsu and NEC were both showing prototype applications of Japanese translation software. NEC was running its *Translation Support System* on one of its workstations. The software incorporates artificial intelligence to help the translator. They hope to hook all of this together with desktop publishing.

Fujitsu was showing *ScanFile*, which they hope will someday allow real-time machine translation of Japanese articles and bibliographic databases. The user would subscribe to the ScanFile service and search databases on line in Japan.

There is a great demand for the technical information found in Japanese publications, but there are some problems. Translation technology is unproven, and reliability would be a big concern to users. The US is way ahead in the use and availability of on-line databases and full-text services. Indexes and abstracts for articles that would require further translation may be hard to sell. You say potatoes...

- The most practical booth was that of the Schwab Safe Company. They were showing several models of safes built with data storage in mind. The safes will keep your data intact through a building-destroying fire, even though the shell of the safe is totally burned and fused. Some models look like office standard two-drawer paper files. How many

millions of dollars worth of data is stuck in a \$200 filing cabinet—the safes ranged from \$1,300 to \$4,000. Even more importantly, you can put your lunch in it.

Many vendors had trouble figuring out what to show the attendees. The hardware and software engineering crowd is not your usual show crowd. Silicon-tower conservatives, the lot.

The Year Of The CPU—3rd Quarter

Everyone and their pet dog knows about the new Apple computers, the Macintosh Portable and the Mac Ilci. Their coming-out party was held at the Universal Amphitheatre in Los Angeles. It was a monster event, with a proper Hollywood-style version of computing—smoke, multi-colored laser effects, and ear-splitting sound.

BMUGers who attended the event in the flesh claim that the speeches and canned sales video spots worked. Those of us that watched the show on a satellite feed had the benefit of free coffee to keep our eyes open. Gasseé repeated his Erector-set demo, and built a Portable on stage live. When he's on stage, we're never bored. Oh, that MacTightrope Walker!

The Portable's spots had us all in stitches. No university department head that I've ever met would allow a \$7,000 Mac to be lugged around a

mountain, or a lake! They must have felt free to abuse the testing units that Apple will replace with "the good ones." At least two graduate assistants would be needed for any field project—one to lug the Mac, and the other for the batteries. Make sure your hernia insurance is up to date.

At the Los Angeles Airport after the premiere, a bunch of Apple employees were carrying the Portables home. New security regulations require owners to prove their computers and other electronic devices aren't bombs by turning them on. With the Mac, it's easy—pull up the screen and hit a key. A Toshiba owner at the end of the line wasn't so lucky; he had to power up from an AC outlet.

At the Seybold publishing conference the week of the show, two of the three Portables were out of service. The sales representatives claimed the machines were "recharging," even though not a plug was in sight. Later the story was revised. The Portables were prototype models and not representative of the quality of the released models. Quick thinking!

Note: The BMUG Mac Ilcx (which is built like the new Ilci) took a real spill as we were loading it up for the weekly meeting. It fell about three or four feet to the concrete. The floppy drive was knocked out of alignment and the case was smashed, but it worked fine for the evening. What other user group crash-tests their computers? Computers that we've paid

What Is BMUG?

BMUG is a non-profit educational corporation, promoting the exchange of information. Like any growing organization, it is many different things to its 7000+ international membership. BMUG, Inc. is a computer user group located in Berkeley, California. The group specializes in computers using a graphical interface. For a while that meant the Apple Macintosh, but now includes other makes, models and operating systems, including the NeXT best thing. BMUG supports many Special Interest Groups (SIGs), an eight-line Bulletin Board System (BBS), free HelpLine, software library, weekly meetings, and much more. BMUG also puts out a semi-annual 400+ page book that we call our "newsletter."

Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6:00 to 9:00 (or whenever we finish), in the Physical Sciences Lecture Hall on the U. C. campus.

The BMUG HelpLine, (415)849-HELP, and our fax number, (415)849-9026, provide technical assistance and telephonic hand-holding during business hours (11:00 am-5:30 pm). If your question can't be answered on the spot, we try to get you in touch with someone that can help. course, not every problem can have a happy ending—but we try.

BMUG has one of the most up-to-date, comprehensive software libraries around, with 400+ double-sided disks filled with the latest versions of public domain or shareware programs and HyperCard stacks. New disks are unveiled almost every week at the Thursday general meeting. BMUG also brings you the PD ROM™ 2.0, our entire library and more on CD-ROM—according to Apple, it's the best selling CD-ROM!

Our BBS offers many of the latest versions of files in our software library, as well as news, private mail, rumors, etc. The BMUG BBS is part of the worldwide EchoMac Network on FIDOnet (161/444); by calling a local FIDOnet BBS in your area, you would then be able to get in touch with us wherever you are as well as send mail to users everywhere! BMUG is now a part of the international USENET network (apple!bmug!user.name@sun.com) or (user.name@BMUG.FIDONET.ORG). With our multi-line capability you will now be able to have access to BMUG almost 24 hours a day. It's easy to use, fun, and a great resource.

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VGA • EGA • CGA Plasma Portable

VGA Plasma 286-12 Portable

Display:

- High resolution Gas Plasma Display
- Non-glare screen tilt for 10° or 20° viewing
- 640 X 480 pixel graphics plasma display
- 800 X 600 pixel graphics on external VGA or Multisync monitors
- 16 gray scales shading
- Contrast ratio — 12 : 1
- Adjustable brightness control
- 80 X 25 character display
- 640 X 480 resolution at VGA mode
- 640 X 350 resolution at EGA mode
- 640 X 400 resolution at CGA mode
- 640 X 348 resolution at HGC mode
- Screen size: 7.75" X 5.75", 10" diagonal
- Adjustable viewing angle
- External VGA/EGA/CGA/HGC standard port, runs external monitor concurrently

\$2345

System configuration:

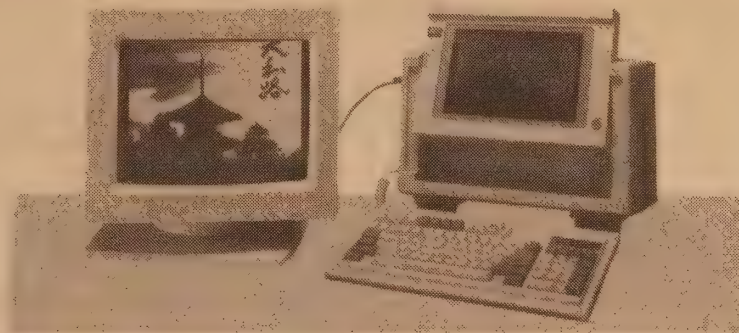
- 12 MHz zero-wait state motherboard
- 5 expansion slots available
- Detachable 86-key keyboard w/12 function keys
- Built-in hardware configuration setup program
- 1 MB installed (expandable to 4 MB on board)
- EMS (L.I.M. 4.0) feature built-in on motherboard
- Floppy & hard disk controller
- TEAC 1.2 MB, 5.25" floppy drive
- Total one 3.5" & two 5.25" drive bay available
- One parallel port & one RS-232 serial port
- Intel 80287 math co-processor socket ready
- Landmark® Speed Index: 16; Norton® SI: 13.7
- Support DOS®, OS/2®, Xenix®, Unix®, Novell®
- 110/220V AC auto-switching; 180W power supply

Weight & Dimension:

- Approximately 22 lbs (with 1 floppy drive)
- 16.1" (W) X 9.1" (H) X 7.5" (D)

Case Features & Accessories

- Reset button, FD/HD & power LED indicators
- Durable carrying case w/ adjustable strap



EGA Plasma 286-12 Portable

Display:

- EGA/CGA/HGC/MDA display modes
- 640 X 350, 16 colors on external EGA monitor
- 640 X 350 resolution, 4 gray scales plasma display

\$1945

All other specifications are same as VGA model.

CGA Plasma 286-12 Portable

Display:

- 640 X 400 pixel graphics display
- 80 X 25 characters display
- CGA/HGC/MDA display modes

\$1685

All other specifications are same as VGA model.

Options:

- 20 MB hard disk 245
- 30 MB hard disk 285
- 40 MB hard disk - Seagate ST251-0, 39ms 345
- 40 MB hard disk - Toshiba TF134, 23ms 445
- 66 MB hard disk - Toshiba TF134-RLL 485
- 2nd floppy drive: 720KB/1.44MB 85/95
- Interleave 1:1 controller additional 45
- 80287-10 math co-processor \$Call
- 80387-20 math co-processor \$Call
- 80387-25 math co-processor \$Call
- Memory upgrade \$Call

386 System Options:

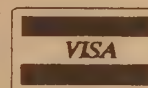
- 386-20 MHz - VGA/EGA/CGA 2945/2545/2285
- 386-25 MHz - VGA/EGA/CGA 3345/2945/2685

All system specifications are same as VGA model

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cash for, even!

Apple wasn't brave enough to give BMUG's Raines Cohen a Portable Mac. Raines is notoriously hard on hardware. He is always carrying a hard disk or laptop in his backpack, on his bicycle, or on trips to Thailand. If a piece of equipment can survive Raines for three months, it will survive normal use for three years.

Uncle John Doesn't Need You

Evangelism, the carrying of the Word, has always been a part of Apple's Macintosh marketing plan. Price breaks are given to particular groups of users in the hope that they will spread the message of the great things that the Mac has to offer. Apple has recently decided that the users buying through military PX stores have not been all that they wanted them to be.

The M.J. Daniel Company of Texas handled the PX operation for Apple. They sent their sales representatives a letter with the following orders from SiliconLand: "Our decision (Apple Computer) to exit the military PX market was a business decision based solely on our strategic direction toward high-end business solutions (which do not fit and meet the needs of the military customers)." Ironically this withdrawal from the trenches coincided with the announcement of multi-million-dollar federal and military contracts for Mac systems.

The real story seems to be that Apple knuckled under to gripes from dealers about the special prices. Dealers near universities and PX stores have always complained about students and soldiers selling the discounted Apple products to friends and family. The university market is too strong for Apple to fool with yet, especially given relative costs of PS/2 and PC-clone systems. The PX channel was sacrificed to the dealers.

Software—Hard Time

Software piracy is back in the news. The Software Publisher's Association is trying to get tough on folks illegally copying and distributing programs. They've taken a page from the IRS cops and are starting a whistle-blowers toll-free phone number. If you want to start a SPA investigation, call 1-800-388-PIR8.

I've found that purchasers and managers often don't really understand the one-to-one connection of software and hardware. If you buy a computer, you must buy software for that unit. Software is thought of more as the expensive reference work that the whole office shares. Wrong!

I spoke to a Canadian Mac consultant a while ago. He had been called to the offices of an Ontario public utility, one of the largest users of Macs in the country. They needed expert help in recovering lost data.

The problem started when the Royal Canadian Mounted Police (their F.B.I.) visited the utility to inspect the hard disk of a particular user. Someone in the office had blown the whistle on a co-worker. The news spread around the company quickly and hundreds of panic-stricken users erased their entire hard disks to avoid detection of any pirated software. Months' worth of data were lost. The PC narcs are here—flush all the data down the toilet!

Some Day My Print Will Come

Printing is always an adventure on any computer, but especially on the Mac. All the graphic goodies we love can give us heartburn at the laser parlor, when we're paying by the minute. Here are some tips on text:

- Resist the urge to eyeball a column by hitting the spacebar. This is something that new computer users often do. Use tabs instead of spaces to line up text in your documents. The screen looks like the page in a typewriter and the keyboard is similar, but don't be fooled. The width of a space can depend on the font style and size of a font.
- Most first-time laser parlor users (and second-, third-...) find their document's margins are fine at home and bad at the shop. The ImageWriter is no substitute for a LaserWriter at proofing time. Remember to fool your word processing program into thinking there's a LaserWriter at home by selecting the correct driver in the **Chooser**.

If you're at the parlor and pulling out your hair—try this trick first. Look in **Page Setup...** and click the **Options** button. In the **Options** dialog box (with the nice doggie) select the **Larger Print Area (Fewer Downloadable Fonts)** item. This will let the LaserWriter widen its margins close to the printing area of the ImageWriter.

- **Leading** is the space between lines. Microsoft *Word* usually looks at the largest type size in a paragraph for the setting. But what if you want to have one larger size word in a paragraph for emphasis?

Look in the **Paragraph** dialog box and enter a negative number for line spacing. This fixes the leading at that size—a -14 would force a 14 point spacing, even if some of the words are 20 point. Be careful and edit your work carefully, since letters can overlap and get smashed together with this process.

- Little delays can add up to big bucks at the laser parlor. Opening, closing, and running through print dialogs can waste time. If there are a number of Macs sharing a LaserWriter, you don't want to wait for anyone else's print job. If you have a group of documents to print, try putting them into one large file.

Users of *Word* can really take advantage of the single file setup. It allows you to have each document in the single file separated with **Section Markers**. This command specifies that page numbers start over in each section. If three markers are used, is it Triple Sec?

Bytes and Pieces

- There are a couple of new *nVIR* virus variants on the loose—one's called *nFLU* and the other *hVIR*. Make sure you have the latest version of the antiviral software of your choice.

- Computer users aren't the only people that should back-up vital information. Lindsey Shere, the internationally acclaimed pastry chef at Berkeley's Chez Panisse restaurant, had her purse stolen recently. In the bag was her lifetime collection of recipes—a loose-leaf binder held together with rubber bands. It's 12 o'clock—do you know where your backup is?
- Check out the BMUG booth and say hello to fellow members at the Mac Business Show, November

Dealers near universities and PX stores have always complained about students and soldiers selling the discounted Apple products to friends and family. The university market is too strong for Apple to fool with yet, especially given relative costs of PS/2 and PC-clone systems. The PX channel was sacrificed to the dealers.

29–December 1, Long Beach, California.

Shareware Spotlight

If you're wondering how your Mac is feeling, you might be interested in the programs on the BMUG *Test* disk. It includes programs that will check your RAM, SCSI drive, monitor, and processor.

- The hot-rod computer magazines are always running benchmark tests that check the speed of a machine. *Speedometer 2.1* is a shareware program that performs them for you, and will compare the results to test data based on a stock SE with an Apple 20 Mb internal SCSI drive. If you're into Whetstones, Dhrystones, and Sieves of Eratosthenes, you'll take off on *Speedometer*.

- *Test Pattern Generator* by Larry Pina will help you check your monitor's settings. It also has tests for sound, as well as information on trouble-shooting printers.

- Built into the Macintosh is a little RAM test that operates when you boot up. If you add some additional memory to your baby, get ready for a longer start-up—from the extra RAM testing and all of the fun *INITs* and *CDEVs* you'll pile into the system.

RAM Check 1.0 runs a rigorous test on the memory available to applications. This process takes a while and the program tells you to go have a cup of coffee—if you have two or more megabytes of RAM, you'll have time for a slice of pi, too. If the chips check out, the program tells you that "once again, goodness and niceness triumph over the forces of rottenness and evil." And over quality control.

These programs and more for \$4 on the BMUG *Test* disk. ■

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20 MB 65 MS HARD DRIVE ADD '199
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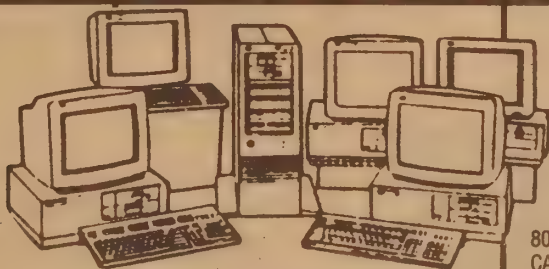
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DCP 80286-12

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1 MB EXP. TO 8 MB
2-32 BIT 4-16 BIT
2-8 BIT SLOTS
CLOCK AND CALENDAR
HD/FD CONTROLLER
1.2 MB FLOPPY DRIVE
SERIAL, PARALLEL & GAME PORTS
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HERCULES COMPATIBLE VIDEO
12" AMBER HI-RES MONITOR T&S
20 MB 65 MS HARD DRIVE ADD '199
20 MB 35 MS HARD DRIVE ADD '229

\$1179

DCP 80386-20

80386SX-16 MHZ MOTHERBOARD
AT STYLE CASE W/LEDs
200 WATT POWER SUPPLY
1 MB RAM EXPANDABLE TO 8 MB
SERIAL, PARALLEL & GAME PORTS
BUILT-IN CLOCK & CALENDAR
HD/FD CONTROLLER
1.2 MEGABYTE FLOPPY DRIVE
101 KEY "ENHANCED" KEYBOARD
HERCULES COMPATIBLE VIDEO
12" AMBER HI-RES MONITOR T&S
20 MB 65 MS HARD DRIVE ADD '199
20 MB 35 MS HARD DRIVE ADD '229

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DCP 80386SX-16

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2 MB RAM EXPANDABLE TO 16 MB
SERIAL, PARALLEL & GAME PORTS
BUILT-IN CLOCK & CALENDAR
HD/FD CONTROLLER (1 TO 1 INTERLEAVE)
1.2 MEGABYTE FLOPPY DRIVE
42 MEGABYTE 28 MS HARD DRIVE
101 KEY "ENHANCED" KEYBOARD
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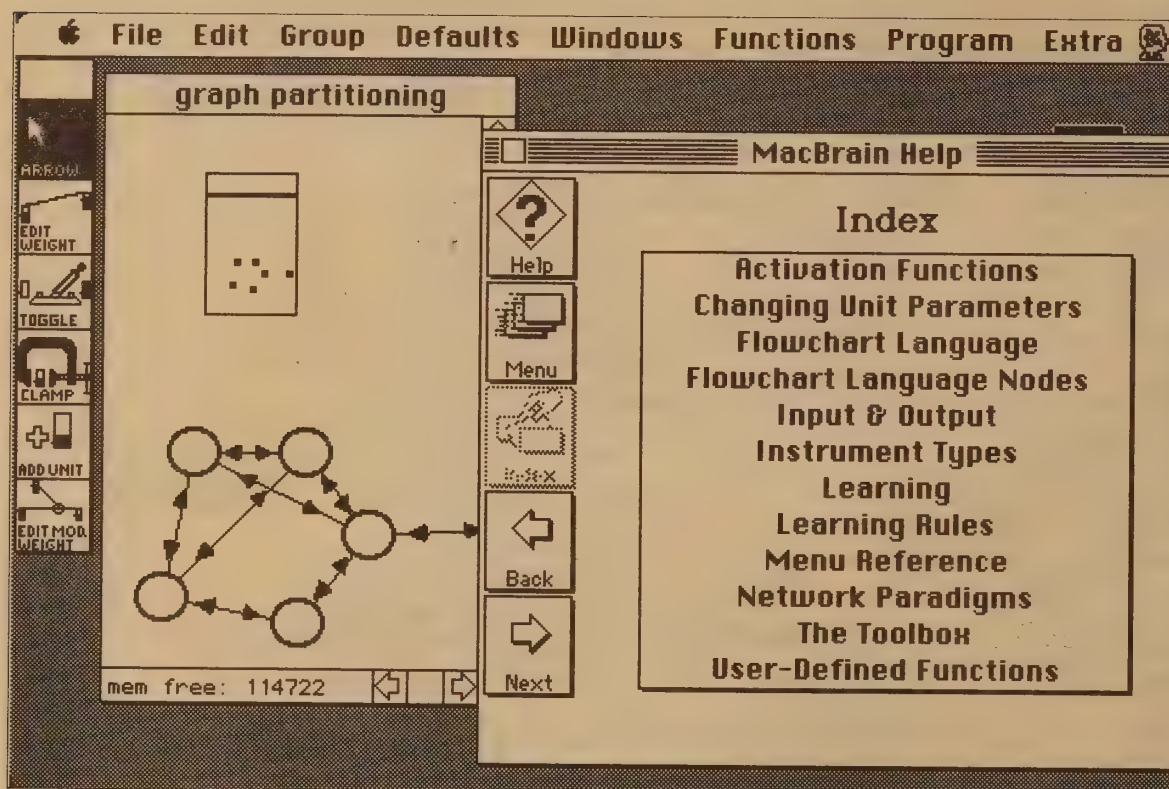
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Making A Buck With HyperCard, Part 3

HELP AND GUIDANCE

Using HyperDA To Provide Policy Manuals And Help Stacks



Mac Brain (from Neurix) uses the HyperDA Engine to provide context-sensitive help from a HyperCard stack.

Corporations and software developers have one problem in common. People need guidance. The employee doesn't do what the corporation wants, and the software company's customer doesn't master the software. Both the corporation and the developer need a way to get information to the person who is working with their systems. They can put the information into *HyperCard*, gaining the advantages of hypertext. The user or the employee can navigate through the stack, gathering the information needed to "do the right thing" without bothering the supervisor (in the corporation) or the help-line (for the developer).



Copyright © 1989 by Birrell Walsh. All rights reserved. Birrell Walsh can be reached on the WELL (User ID: birrell) and CompuServe (72466,3567).

But a second problem arises. Unless the users or employees have Multifinder and two Mb of RAM, how are they to have both the application and *HyperCard* up at the same time? The *HyperCard* solution seems stymied at step one.

But there's hope. The Symmetry Corporation (602/844-2199) has given us the \$89 **HyperDA**, which turns most of *HyperCard* into a Desk Accessory. The user or the employee can call up your *HyperCard* policy stack or help stack without leaving the application. And there's more: The *HyperDA* version of a stack can live in a window that is smaller than the whole screen. You can design your stacks to take up only part of the visible area, while the user's document is also partially visible.

The Corporate Rulebook

How do you get involved and make a buck as a *HyperCard* maven? Imagine that a corporation named Smithbock and Sturgis turns out a lot of writing. Some of it is good, but some is so bad that the managers are corporately embarrassed. They know how they want the employees to write. How

A developer can license the HyperDA system to include with software, so that the end-user can have help from a stack just as if that user had a copy of HyperDA.

can they have those few simple rules at hand when the employee is working on a *MacWrite*, or *Word* or *FullWrite* document? You offer to design the corporate style manual as a hypertext document that can live in the Mac without being in the way. You bet it's worth a few dollars to them—they have a low-cost, extensible manual.

Any Macintosh corporation has this need. You can find Mac-based corporations by visiting Mac-centered software stores and user groups. You need to prove to the company that you can design a working stack, and that you can design one that serves their needs.

It's a four-step process. First, before you visit them, design a sample style manual that is simple and clear—and that WORKS (need I say) flawlessly. When you visit them (the second step), spend more time asking about their needs than talking about your excellence—the stack should demonstrate that. They will tell you what they need, and in step three you can quickly convert your stack structure into a sample of what you can do for them. Step four is to show them your flawless model. Don't worry if you are rejected the first time or two. You now know, concretely, what corporations need, and your next stacks will be even better.

"I Can Program But I Can't Write"

These are the words of many a genius. Isn't it enough to design a whiz-bang program? No, it is not. Any frustrated user can tell you that a magnificent program with a bad manual is useless.

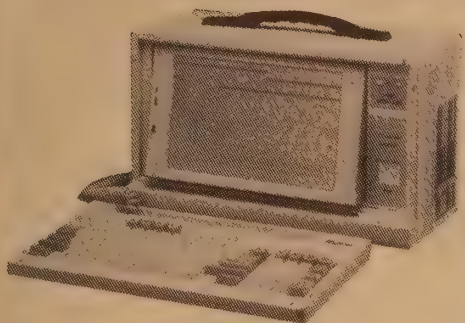
A number of software companies have used *HyperCard* to provide live and context-sensitive

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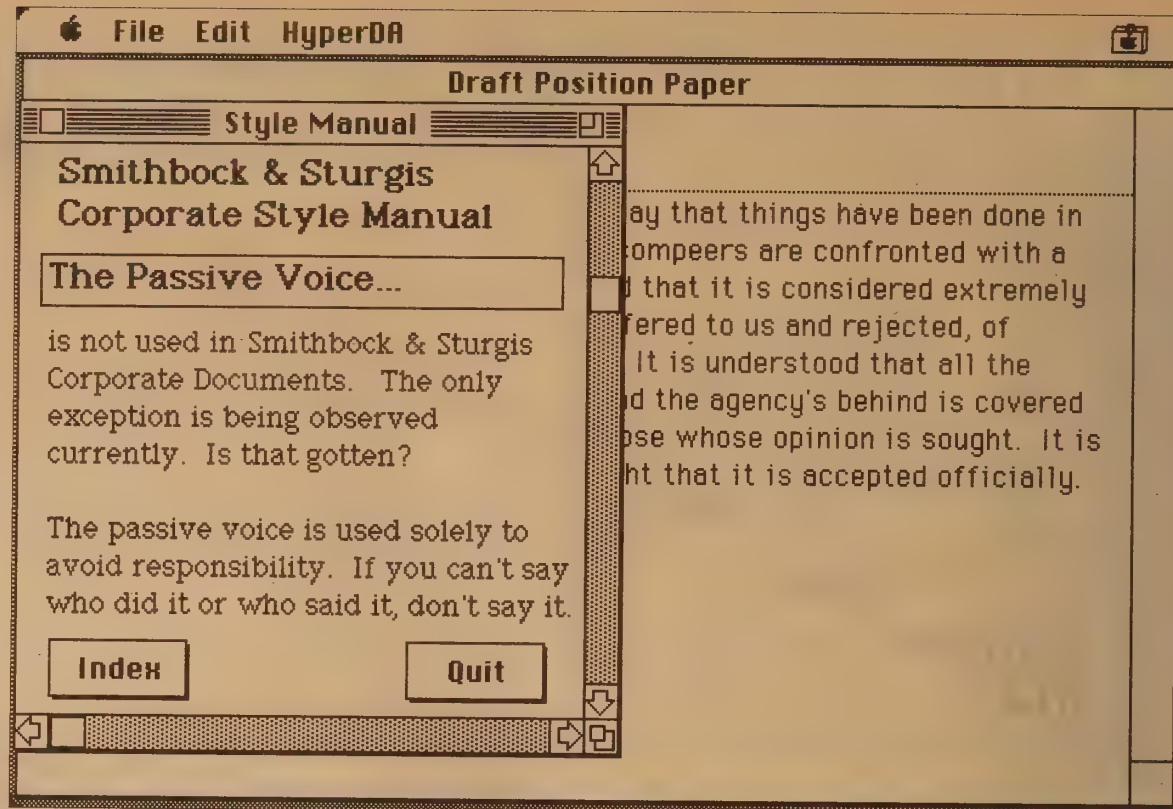
help. *HyperDA* is the tool here, too, but in a special form called the *HyperDA* Engine. A developer can license the *HyperDA* system to include with software, so that the end-user can have help from a stack just as if that user had a copy of *HyperDA*. And you, the *HyperCard* specialist, can get a *HyperDA* developer's toolkit for \$125.

An elegant example is the help stack included with *MacBrain* from Neurix (617/577-1202). The program is a neural-network simulator which is easy to learn. But like all neural-network software, it must be explained in detail to the new user. Neurix has included a complete manual-in-a-stack, which is accessible from any point in the program.

The problems and structure involved in developing a "Help Stack" are similar to those in developing a corporate manual. That means that much of the work need not be redone when you make a stack for a new software company or corporation. You can find a current list of developers in the Macintosh environment through Apple Computer, and you then proceed as with the corporation in need of a manual.

Three Ways To Make A Buck

In the last three months we have examined ways that you can use your *HyperCard* skills to make a few dollars. First, we talked about developing presentation packages for clients using *HyperCard*, *SuperCard* (Silicon Beach, 619/695-6956), and



HyperDA lets a corporation make its company policies available to every employee who uses a Mac. Updating the manual requires only a modification of the stack.

HyperAnimator (Bright Star 206/451-3697). You use your expertise to build a display package on their Macintosh system, and the client pays you as a consultant.

Last month we suggested marketing your stacks through Heizer Software (800/888-7667). They handle all packaging, advertising, billing, collecting, and shipping for you, and you get 50% of the

gross. Not bad, eh? Get their catalog and talk to them to see if your stack idea interests them.

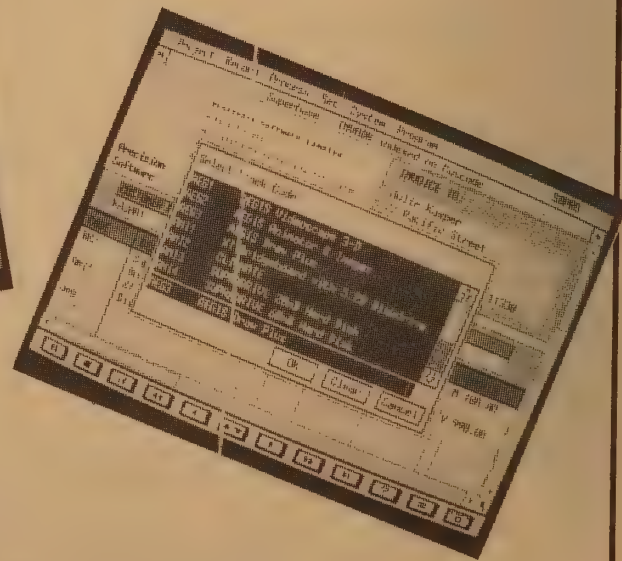
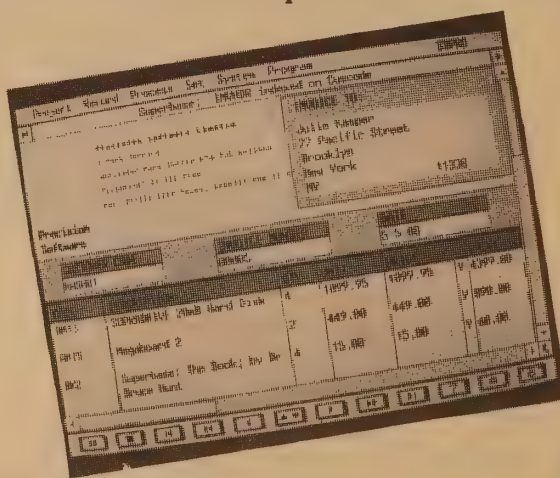
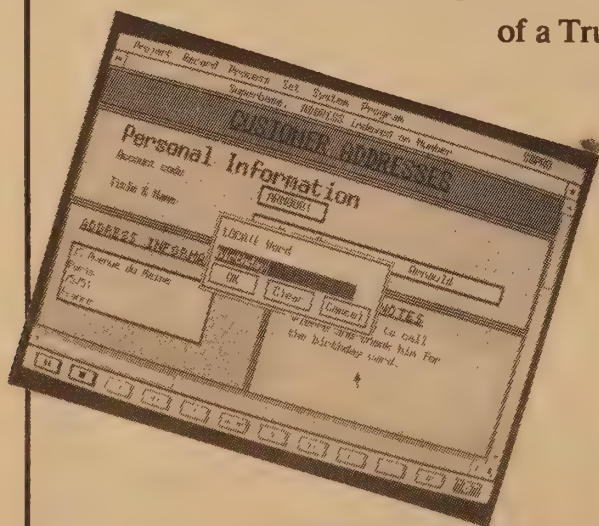
This month we suggest that you use your *HyperCard* knowledge and your literary elegance to write corporate manuals for corporations and help systems for software companies. The corporations and software companies will thank you. If you do a good job, so will the employees and the software users! ■

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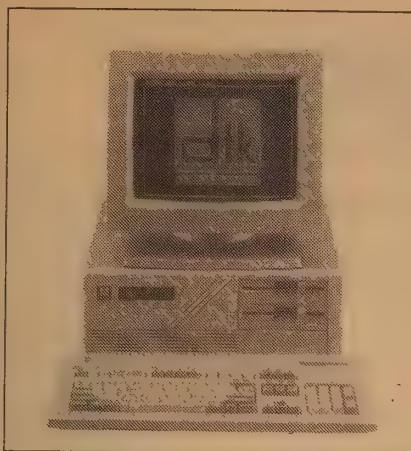
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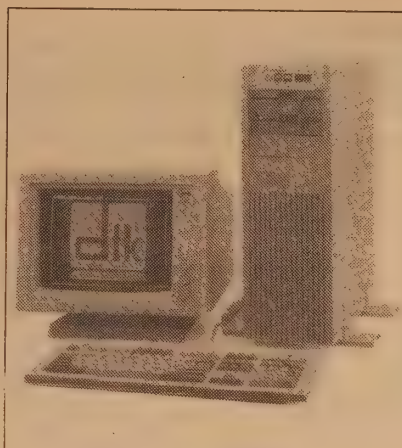
20 MHz System Serves as Ideal CAD Workstation

DTK's FCC-Certified KEEN-2030 is a 20 MHz INTEL 80386-based high-performance system packaged in a mini-AT cabinet. It features 2 serial ports, 1 parallel port, 8 expansion slots and up to 8MB of RAM.

A 4MB version of the KEEN-2030, equipped with an 80MB hard disk and 80387 math coprocessor, was used by INFO WORLD magazine as the test bed for a product comparison of four high-end Computer-Aided Design (CAD) systems (See the July 17, 1989 issue).

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Suggested Retail—Bare Bone System



25MHz Bare Bone System Offers Low Price/High Performance

The DTK KEEN-2500 offers performance superior to other 80386-based 25 MHz computers, at a lower price.

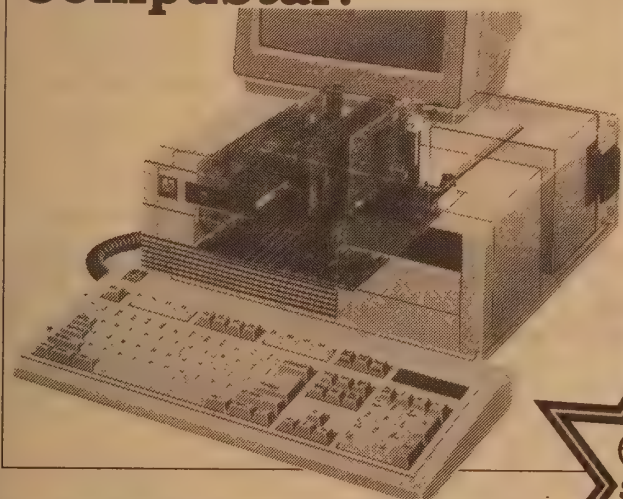
The system utilizes the high-quality PEM-2500 motherboard with an innovative 64KB/256KB selectable write-back cache, eight expansion slots, and room for 16MB of 32-bit DRAM.

The KEEN-2500 is certified for hardware and software compatibility by XXCAL Test Labs. It is Landmark VO.99 rated at 43.5 and Norton SI V4.0 rated at 32.5, making it one of the fastest systems in its class. In fact, MIPS magazine rates it the 386/25 price/performance leader running under SCO XENIX.

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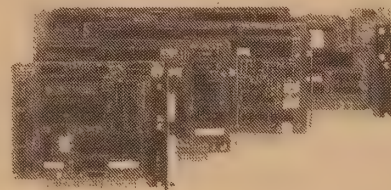
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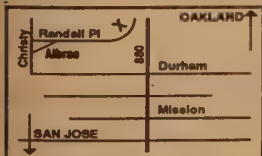
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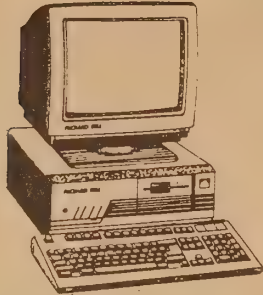
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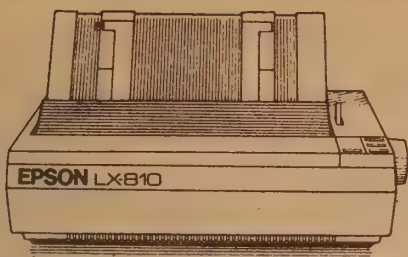
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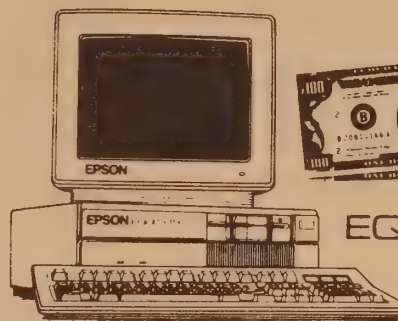
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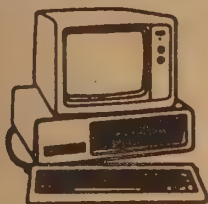
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USER GROUP NETWORK

BY MARY EISENHART

Tripleheader at PC Clubhouse, Groups On The Move, Women In High-Tech

Things are pretty frantic around the old *MicroTimes* offices this month, what with the pre-COMDEX craziness, the end-of-year insanity, the impending holiday crush, and everything else that seems to be happening all at once. The phenomenon doesn't seem to be exclusive to us, though—judging by this month's mail, it's a pretty busy month out there in User Group Land.

We'll start with the **PC Clubhouse**, which, as some of you will remember from previous discussions, is a large PC-oriented group that meets monthly on the Cal State Hayward campus. The November 3 meeting features an impressive lineup of presentations.

First on this dynamite triple bill is **Dick Davison**, whose company publishes the PC-based hypermedia product *Hyperdoc*. If you're a DOS user with a bad case of *HyperCard* envy, this is for you. Davison will be discussing the product itself, as well as his company's developer programs designed to foster the rapid creation of lots of *Hyperdoc*-based applications.

Next comes the **Free Software Foundation**, represented by **John Gilmore** and **Tim Pozar**. John and Tim are interesting and wizardly guys, and they'll be talking about the Foundation's recent work in the MS-DOS environment. The Free Software Foundation is dedicated to the mission of making quality software available to all users free of charge, and is probably best known for its freely distributable GNU (GNU's Not UNIX) UNIX-like operating system.

The third presentation is a panel discussion on a topic near and dear to struggling DOS users: **Making Money With Desktop Publishing**. As we've all heard by now, PC-based DTP offers lots of promise and lots of headaches, and the panel will consist of several people actually earning money with desktop publishing on their PCs. They'll talk about their experiences—the joys, the sorrows, the struggles and successes—and pass along a few cautionary tales.

The meeting takes place at 8 pm on November 3, and if you'd like more detailed information or directions, you're invited to call PC Clubhouse president **Bill George** at (415)538-2449.

Paul Tibbals of **ACCESS**, the Commodore/Amiga user group in the East Bay, wants everybody to know that the group is no longer meeting at Homestead Savings in Livermore. Instead, they're now meeting at the Livermore airport at 7 pm on second Thursdays. Paul invites interested parties to call him at (415)829-6053.

Speaking of groups on the move, we hear from president **Ray Druian** that the **San Francisco Computer Society** has also changed its meeting place. Meetings are now in the Laguna Honda School conference room (first floor) on first Mon-

days at 7 pm, unless the first Monday happens to be a holiday, in which case it's first Tuesday. Laguna Honda School is located at 1350 7th Avenue in SF. Ray can be reached at (415)752-9961 if you've got more questions.

One of the most unusual user group listings we've received in some time comes from **Margaret Copeland** of the **Textile Computer Users Group**. Says she, "We have 37 members and are growing. We use all types of computers to produce textile designs and run textile equipment." (**Sue Albert**, whose articles frequently grace these pages, says that some of the implementations these folks have come up with are *amazing*—one woman creates a design on her Amiga, then dumps it to her knitting machine, which makes it up then and there.) Anyway, this is a pretty cool variant in a sea of me-too applications, so if you're interested in computers and textiles in one form or another, you might want to check this group out. You can reach Margaret at (415)284-1635.

Duane McGhie of Cupertino tells us there's been a terrible oversight—we're not listing his user group, **P.I.E.**, aka **Programming and Interfacing Enthusiasts**. P.I.E. started life some years back in the Apple II's heyday as **Apple P.I.E.**, and has now expanded to the point where it consists of five Special Interest Groups: Apple II, Apple IIGS, *AppleWorks*, IBM PC and compatibles, and Macintosh. SIG meetings occur at various times and places in Silicon Valley; to find out about the ones you're interested in, call **Fred Bernal** (Apple II) at (408)258-0284, **David Cone** (Apple IIGS) at (415)322-7867, **Egon Johnson** (*AppleWorks*) at (408)356-2660, **Clay Walker** (IBM) at (408)736-7704, or **John Williams** (Mac) at (408)446-0858.

P.I.E. also has its own BBS, open to members and non-members alike, at (408)733-4670. Clay Walker is the sysop.

Finally, **Rita Zokaei**, who's kept us up-to-date on the doings of the **Silicon Valley Computer Society** for some time now, has something new: the **California Women's Computer Society**, which she announced October 12 at a meeting at Oracle's new headquarters. The CWCS mission: "to increase the computer literacy of women through its user group activities." Education, community outreach, mentoring, and the formation of a Y-chromosome "old-boy network" are among the organization's plans; the October 12 meeting included women from Oracle, Apple, Compaq, Sun, the Society of Women Engineers, UC Berkeley, San Jose State, Claris, Northern Telecom... Well, you get the idea. So if the gender gap in high-tech is something you want to do something about, give Rita a call at (415)574-8225.

On that cheerful note, I'll say goodbye for now, but don't forget to keep that information coming. US Mail should go to User Group Network, 5951

Canning Street, Oakland, CA 94609. Faxes are welcome at (415)652-4618 or (213)467-5486. Email can be sent to **microx** on **The WELL** (415/332-4335), **MICROTIMES** on **MacNET**, or {**pacbell**, **hplabs**, **ucbvax**, **apple!well!microx** on **uucp**. Thanks, and have a great month! ■

Bulletin Boards

INTERNATIONAL

Cassia Express. (065)344-9163. 300/1200/2400 24 hrs. Singapore. Sysop: N.M.Rahman.

FidoNet Argentina (054). (011)541-22-419. 8-N-1 3 PM-11 AM PST. The 1st fido node in Argentina has over 450 subscribers. Specializes in issues from S.A. PD software library to d-load. Sysop: Pablo Kinman.

Janis II. (03)255-8856. 24 hrs, 1200/2400/9600. Japan Newsbytes, USA Today, InfoMat magazine, Online Digital Music Review. Over 500 megs info & D/L Pgms on HDD. Sysop: Pete Perkins. Voice: (03)255-8880.

Remote Bulletin Board (Singapore). (065)445-1646. 9600/2400/1200 24 hrs. 218 MB Online (IBM upload/download). Sysop: Umar A. Rahman.

203

Terrapin Station. (203)656-0134. Grateful Dead Board. Sysop: Klaus and Gretchen Bender.

209

Bertha Board BBS (209)239-9853. 300/1200/2400, 8-N-1, 24 hrs. MS-DOS, others. 95 Mb online. Emphasis on programming. Uploads and downloads. No fee but registration required. Sysop: Kenneth Roach.

Don's Dental Service. (209)239-4828. 8-N-1, 24 hrs, 1200/2400. Online dental supply catalogs. No. CA Society schedules, post-graduate course schedules from UCLA, UOP, and Cal. Free. Sysop: Don Carlson.

Night Rider BBS. (209)432-4458, 24 hrs, 1200/2400. Two lines running FX-BBS. MS-DOS 100+ meg. Real-estate and business oriented. Upload and download from a large P/D files section. No fee, no registration required. Sysop: Jim Avey.

Oasis Software Library (209)823-2803, 300/1200/2400, 8-N-1, 24 hrs. Shareware and PD for IBMs and compatibles. No fee but registration required. Sysop: Tim Campi.

Silicon Realms. (209)754-5530. 300/(1200 Soon)9:30AM to 6:30AM. Formerly Motherload 64. Commodore, PET & Plus/4. Programmers board, Continuing & Short Story boards, FRPG. Sysop: Joe Commodore.

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Smerdon.

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The Pathfinder. (209)474-1422, 8-N-1 24 hrs, 300/1200/2400. Message base, MS-DOS software, 2 chess game areas w/player ranking system. Also lively Trade Ware 1000 campaign. Sysop: David Lanphear.

212

Lawyers Linked by Modem. (212)766-3788. Three hundred registrants. A BBS for law-related material. Sysop: Rees Morrison.

RadNET OnLine Services 24 hrs. Online computer network for Nuclear Medicine professionals. Offered through Compuserve. Regular on-line conferences. Call for information and registration. Voice phone: (212)856-6449.

213

Ann Leung's Best Buys. (213)372-4050. Realstate in LA South Bay. Best buys are compiled daily by Gloria Kung. Type GO BEST upon entry.

Ashton-Tate Support. (213)538-6196. Free technical support, answers to questions about Ashton-Tate software products.

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Beaver Creek. (213)437-1410. 8-N-1 All but 4-9 PM. Sysop: John Campbell.

Beta RBBS. (213)393-9777. 1200/2400. Free entertainment BBS. Audio, video, DJ, music, movies, news and discussions. Sysop: Jason Lin.

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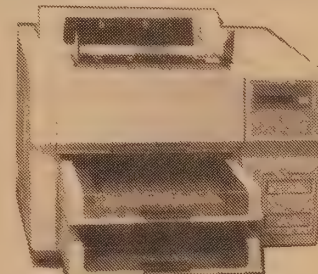
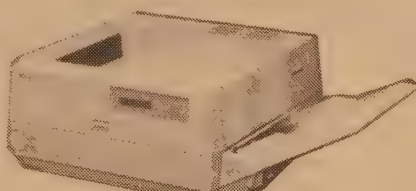
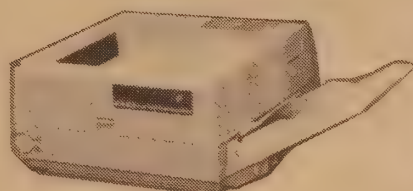
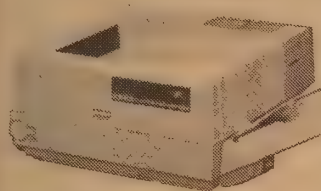
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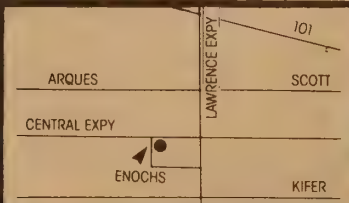
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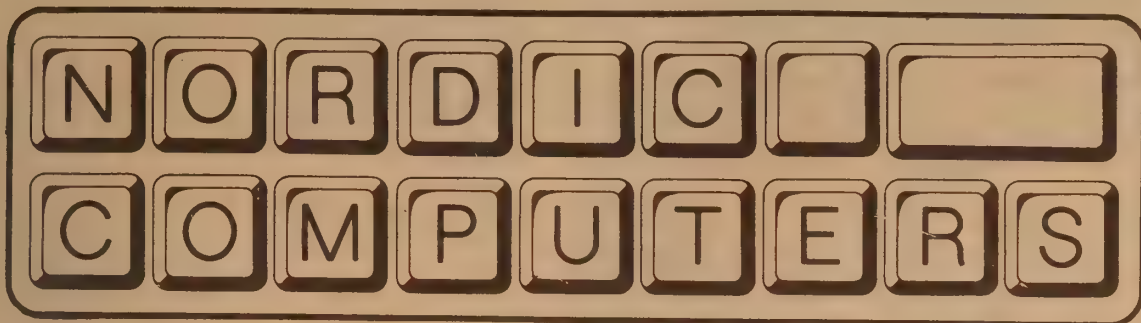
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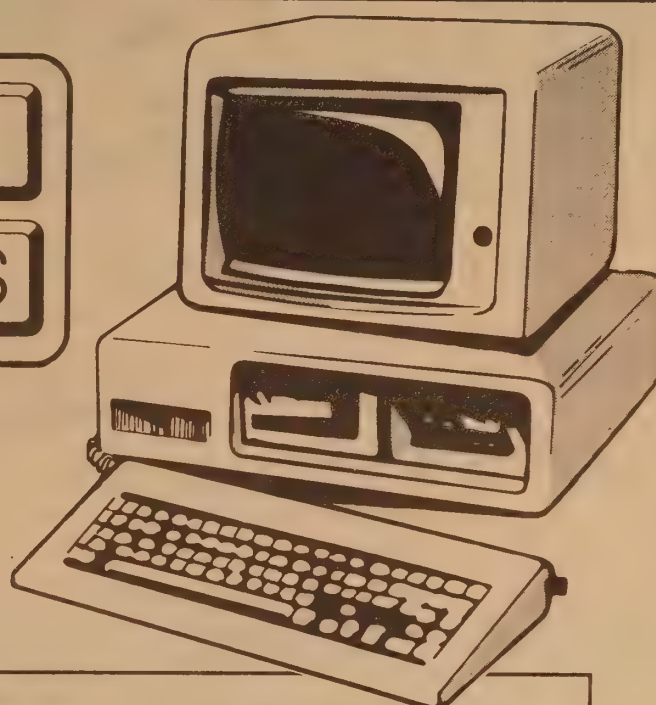




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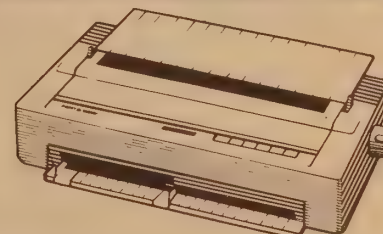
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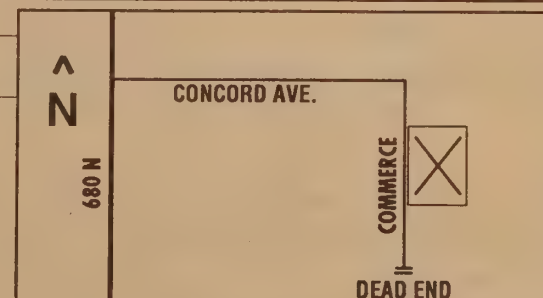
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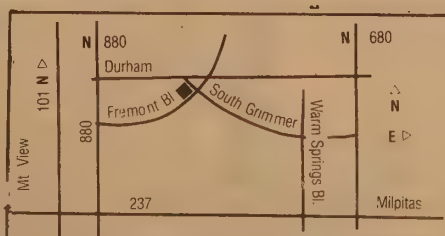
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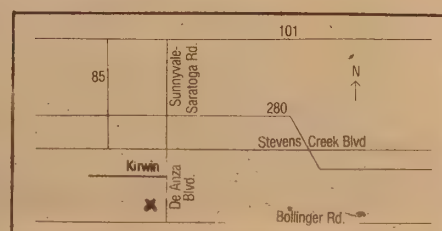
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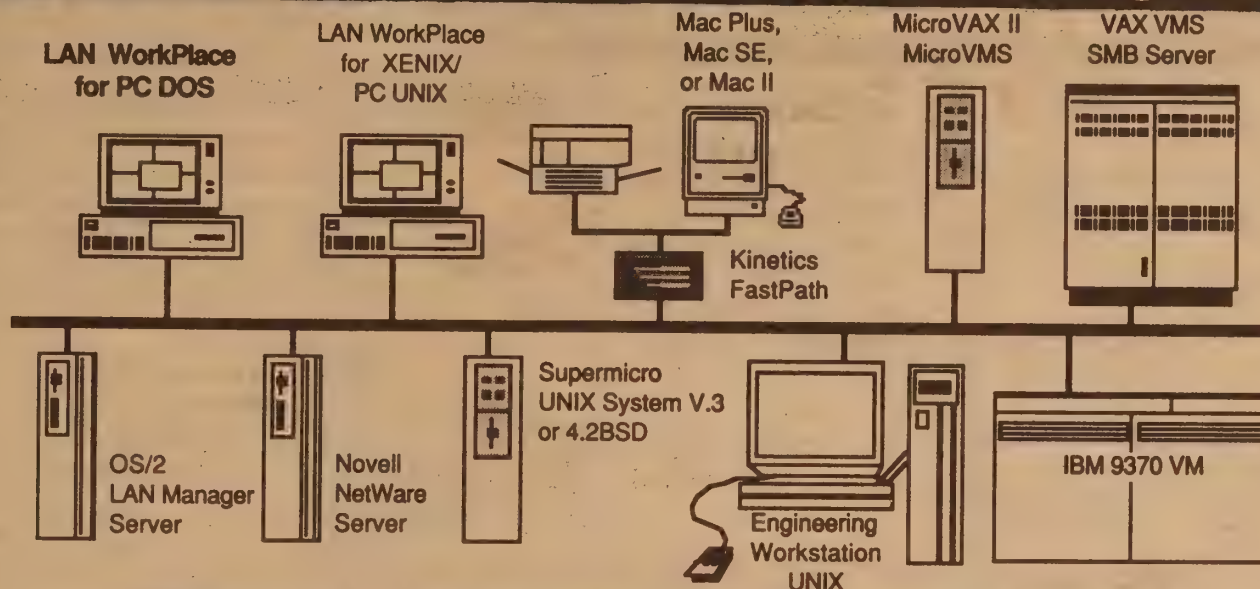
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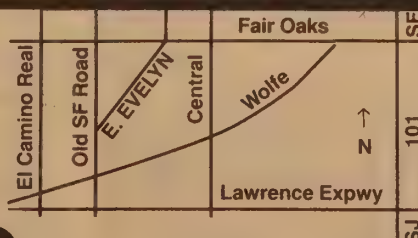
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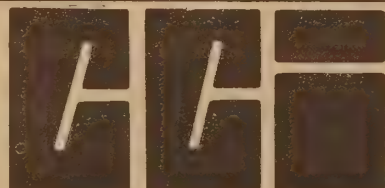
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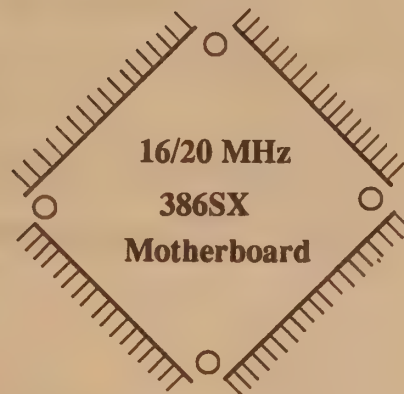
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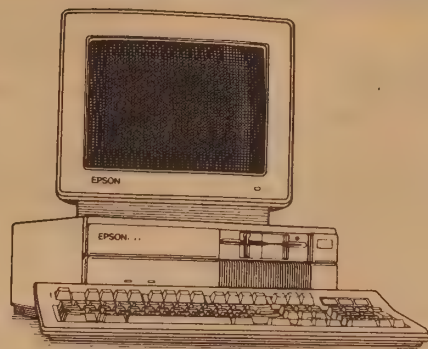
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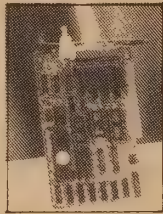
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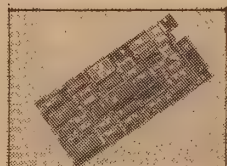


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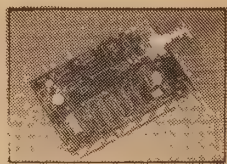
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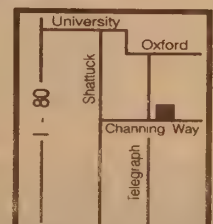
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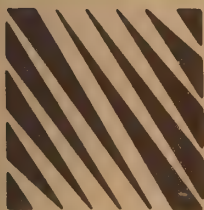
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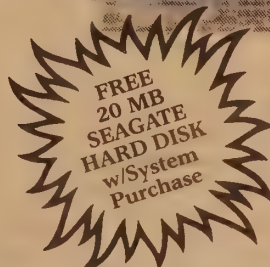
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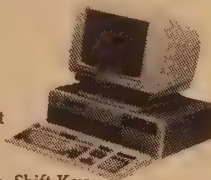
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MacNexus BBS. (916)448-5348, 8-N-1, 24 hrs, 2400. Message portion open to general public. Sysop: Bill Davies.

Night-line Network Central. (916)427-1107, 300/1200, 8:00 PM to 8:00 AM daily. Forum for individuals, clubs and organizations that want to network nationally with others. Sysop: Eric Thomas.

Phoenix Landing BBS. (916)966-8243. 300/1200/2400. Macintosh oriented but many other computers are supported. File areas for Mac and other computers. Supports echomail conferences including ECHOMAC and BAYMAC.

Associations

Account-A-Call National Users Group (AACNUG). First meeting in Universal City June 19-20, 1989. National user group for Account-A-Call service bureau and software customers with members drawn from nearly 1000 companies nationally. Call: Shelly Schoenberger, 1-800-447-TUMS.

AI Expert Systems for Business (ESB). Meetings: 1st & 2nd Suns., San Francisco. Business PC expert system solutions. Determine market opportunities, group research projects.

Animated People User's Group. In the spirit of Max Headroom and "Hitchhiker's Guide," we're attempting computer digitization/animation of real people personalities. San Jose. Call: Tom, (408)226-9225.

Artificial Intelligence Special Interest Group (AISIG). Call Rita Zokaei, (415)574-8225.

Artificial Intelligence Special Interest Group. Meetings: 2nd Thurs. Engineering 101, Santa Clara University. Independent nationally recognized group studying and developing AI and artificial neural networks. Call Kent Byron (408)244-8739 for info.

Association for Women in Computing. Meetings: 1st Wednesday of each month, 6:30 PM, Stagecoach Restaurant, 44 Montgomery St., San Francisco. Call 655-3110 for information.

BAY HPX. Meetings: 2nd Saturday Laptop & handhelds. Call Jim Horn or Michael Felsenstein: (707)794-3130/ (415)564-8279.

Bay Area CYMA Dealers Association. Meetings: 2nd Tuesdays, Thursdays; 4:30-6:30 pm, San Mateo. Networking and support for McGraw-Hill accounting software consultants and retailers. Call: (415)345-5955.

Baytalk Computer Users Group. Write: PO 369, Berkeley 94701. BBS: (415)864-6430, 300/1200, 8-N-1.

Business Computerization User Group. Group forming. Write 6938 Buckingham Blvd., Berkeley, CA 94705, or call (415)848-2080.

California Genealogical Society Computer Interest Group. Meetings: 2nd Sat. - odd months Genealogical Society Library, San Francisco.

Computer Associates Users Group. Meetings: 3rd Wednesdays, 6:30 pm, 1500 Van Ness Ave., Call: Beth Markus, (415)864-6770.

Computers & Law Assoc. Meetings: McGeorge School of Law, 3200 Fifth Ave., Sacramento, CA 95817.

CYMA/McGraw-Hill Users Group Meeting. Meetings: Monday, October 24, 3:00-5:00 pm, McGraw-Hill Publications Building, 425 Battery St., San Francisco. Meet CYMA professionals and learn how to get the most from your software. Call: (415)839-7466.

Digi-Dunces Un-Ominous. A meeting-ground and exchange for the fat-of-finger, the hopelessly analogish, and patients of the electrogratification disease. Presently a confederation of various interests & occupations keeping one another apprised of relevant events & experiences. Contact: SASE, PO 884334, San Francisco 94188.

East Bay User Group. Meetings: 3rd Wednesdays, 7 pm, 12500 Campus Dr., Oakland, Rm R-7, Call: (415)436-2453.

Entrepreneurial Support Group. CEO. Meetings: SASE, P.O. Box 2781, San Rafael, CA.

Ham Radio Computer Packet Group. Meetings: 2nd Fridays, 8 pm, Salvation Army, 4600 Appian Way, El Sobrante. Learn how to use your computer to broadcast all over the world with the fascinating world of Ham Radio. Call: Bob Fields, (415)237-3761.

High Tech Gays. Meetings: 2nd Sundays, Part of the National Gay & Lesbian Task Force. Call: (408)993-3830.

High Technology Entrepreneurial Council. Meetings: Wednesdays, 6:30 pm, Piedmont Community Center, 711 Highland Ave., Piedmont. HTEC is a nonprofit corporation dedicated to providing software developers and other high tech entrepreneurs a forum for developing marketing strategies, building business relationships and exchanging experience and information. Call: Rachel Munoz, (415)339-3895.

Independent Computer Consult-

ants Association (ICCA). A national professional association dedicated to ethical standards in computer consulting. Provides a computer consultant referral service. Meets monthly. Call: (415)441-2948.

Microcomputer Users of Santa Cruz Fog Affiliate #116. Meetings: 2nd Thursdays, Green Acres School, 966 Bostwick Lane, Santa Cruz. This facility is wheelchair accessible. Call: Barney, (408)476-0504.

MORE: Modemusers Of The Redwood Empire. Meetings: Thurs. July 14; Fri. Aug. 9; 7 PM, Roundtable Pizza, Highway 12 @ Stony Pt. Free membership for modemers who want to get together and talk about local boards. Includes novices to technowizards. Call (707)546-5203.

Mt. Diablo Technology Association. First meeting: Wednesday, Sept. 14. Others monthly at Michael's Restaurant in Walnut Creek. Lunch and evening meetings, send for calendar. Back by popular demand. Will explore common concerns in industry and educational developments. Call: Deborah Scott, (415)932-4828.

Network Users Group (NUG). Next meeting: July 7. Call for location and time. Panel discussion of workgroup software with several major software manufacturers represented. Call (415)655-6500 for details.

North Bay Users Group (NBUG). Meetings: 2nd Thurs. 7:30-10 PM, 201 Maine St., Vallejo, CA. Family Computer Club dedicated to all forms of computing. Determine market opportunities, group research projects. (415)564-6669.

Northern California User Group. Meetings: Every 3 months. For schedule, Call: Ken Lebeiko, 881-2652.

Nota Bene User Group. Meetings: 3rd Tues. or Thurs., 7:30 PM Berkeley or Peninsula. For location and date, call Thomas Ross, (415)845-2410.

PASS: Professional Association of Secretarial Services. Meetings: 2nd Saturdays 11:30 AM, Oakland or San Mateo. Call: Nina Feldman, (415)655-4296.

Pioneer AWSSM (Association For Worldwide Software Support Managers). Meetings: 2nd Tuesdays, 6 pm. Call: Janice Corbo, 3Com Corp., (415)694-2841.

Pracsa, for Sysops & Users. Meetings: 2nd Wednesdays, 6:30 pm, Coco's Restaurant, 1305 South Mary, Sunnyvale. Call: Bill Strouse, (408)453-3321.

ProTel (Professionals In Telecommunications). Meetings: Monthly. Holiday Inn, 1221 Chess Drive, Foster City. ProTel is a network organization for people interested in telecommunications. Leave a message at (415)227-5637 for information.

San Jose User Group. Meetings:

First Wednesdays. For location and time, Call: Hanna Varniz, (408)984-8484.

SEF Marketing SIG. Meetings: 4th Thursdays, Teknowledge, 1850 Embarcadero, Palo Alto. Call: Don Morrison, (408)425-7222, or (415)854-7219.

Silicon Valley Computer Society. Contact Kent Stafford (408)286-2969. Or write to 2464 El Camino Real #190, Santa Clara, CA 95051.

Software Entrepreneur's Forum (SEF). Meetings: 3rd Thurs. 1875 Embarcadero Rd., Palo Alto. Helps individual software developers and startup software companies. Call for complimentary newsletter. (415)854-7219.

Technology Executive Roundtable (TER). Meetings: Fourth Tuesdays, 6:00 pm, Santa Clara. Call: Jenny Hoyt, (408)997-1826.

The Hispanic Computing Association. Meetings: 3rd Thursdays, DataDesigns/American Music, 2388 Mission St., SF. Spanish/English Computer Information, PC & Mac presentations and solutions. Call: Juan Lira, (415)824-8337.

United Sysops Association (USA). Meetings: 2nd Wednesdays, Coco's Restaurant, 1305 S. Mary Avenue, Sunnyvale. The emphasis of the group is to help the sysops around the world, and especially in the countries of the Pacific Rim. Call: William Strouse, (408)453-3321.

Valley of the Moon Users Group. Meetings: 2nd Saturdays monthly, 10:00 AM, Moose Lodge, Sonoma. All systems welcome. BBS, 300 BAUD, 24 hours, (707)996-7922.

Women's Special Interest Group. 7:30 pm, Hewlett-Packard, 5301 Stevens Creek Blvd., Santa Clara. For all women interested in computing. Call: Rita Zokaei, (415)574-8225.

User Groups

AMIGA

ACCESS (Amiga + Commodore Computer Enthusiasts Society). Meetings: 2nd Thursdays, 7 pm, Livermore Airport terminal off I-580 Airway exit. Call: Paul Tibbals, (415)829-6053.

Amiga Addicts Anonymous. Meetings: Newsletter, public domain library, demonstrations. Write PO 4669, Walnut Creek, CA 94596. Call: (415)689-3453.

Amiga East Bay Info Exchange (AEBIE). Meetings: 2nd Tues., 7 to 9 pm, 11185 San Pablo Ave., El Cerrito. Write to P.O. Box 485, Pinole, CA 94564.

ASCITEC: The Amiga Science & Technology Users Group. Meet-

ings: 2nd Thurs., 5-7 pm, Lockheed, B/157, Rm. 4-C, Sunnyvale, CA. Scientific/Video Applications. Classes available.

AUGMENT - Amiga Users Group of Silicon Valley. Meetings: 2nd Fri., Write to P.O. Box 1863, Fremont CA 94538 for more info.

AUM—Amiga Users Of Marin. Meetings: Third Wednesdays, 7:30 pm, room 191, Science Center, College of Marin, Kentfield. Call: Bob Galvan, (415)924-5384.

Bay Area Amiga Developers Group (BADGE). Meetings: 3rd Thurs., 8 pm, Turing Auditorium, Stanford University, Stanford, CA. For all Amiga programmers. No membership fee.

CWEST Bay Area Commodore Users Group. Meetings: Third Thursdays, 7:00 pm, Fort Mason, Bldg. C, Rm. 215. Support C-64/128 and Amiga. New Users welcome. Write PO 146731, San Francisco, CA 94114-6731.

HAUG (Hayward Amiga Users Group). Meetings: 1st Wednesdays, 7 pm, Mulford Gardens Community Center, San Leandro. Call: Ken, (415)352-0220, or Kenny, (415)351-7349.

Northern California Amiga Club. Meetings: Second Saturdays, 2 pm, Rico's. Supports Amiga. Write: PO 54, Bella Vista, CA 96008.

SMAUG (Salinas-Monterey Amiga Users Group). Meetings: 3rd Tues., at 7 pm, Seaside Library, 550 Harcourt Ave., Seaside, CA. Write PO 776, Castroville, CA 95012. Call Richard Binsacca at (408) 678-2518.

SVAUG-Scotts Valley Amiga Users Group. Meetings: 2nd Thursday, 7:00 pm, The Computer Room, Kings Village, Scotts Valley.

Vallejo Amiga People (VAMP). Meetings: 2nd Tues., 6:30 pm, Software 1st, Vallejo Corners Shopping Center. Contact Bill Braun at (707) 554-0263.

AMSTRAD

Amstrad Word Processing User Group (AWPUG). We are an exclusive Amstrad PCW Word Processing User Group. Call: Dennis Anderson, (707)795-8548.

North American Amstrad Users Group (NAAUG). National User group. For info send S.A.S.E. to NAAUG, P.O. Box 2178, Ferndale, WA 98240.

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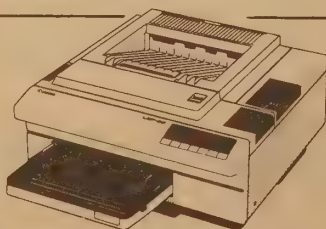
A.P.P.L.E. Co-op. Meetings: National User Group. Call A.P.P.L.E. Magazine. Write: 290 S.W. 43rd Street, Renton, WA 98055. Or call (206)251-5222 for more info.

Apple Pickers of the Redwood Empire. Meetings: 2nd Sat., 10 am, Santa Rosa JC, Shuhaw Hall, Rm. 1735. Call for sample newsletter. (707)763-8322.

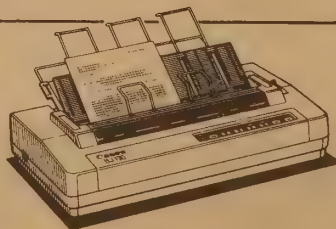
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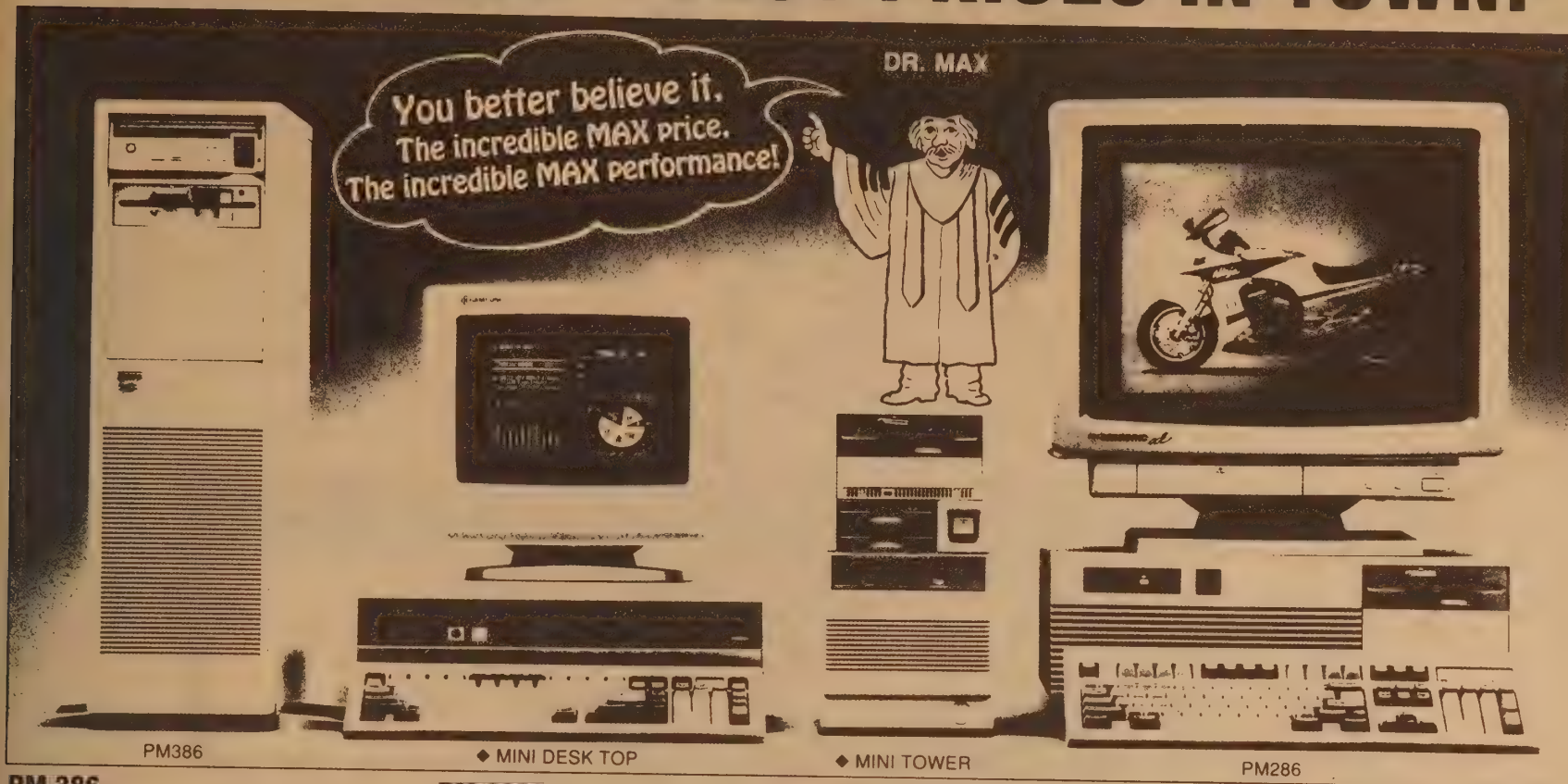
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B.E.A.R. Apple II National Users Group. Meetings: send S.A.S.E. to B.E.A.R., 4719 Meridian Ave. #401, San Jose, 95118. Printshop & Appleworks files, monthly newsletter.

Diablo Valley Apple Users. Meetings: 1st & 3rd Fri., 7 pm, Willow Creek Cir., 1026 Mohr Lane, Concord, CA. SIG's meet monthly. Featuring library of pub. domain software & club's DOM's. Newsletter, demos, group buys hard/software.

Gravenstein Apple IIGS Users Group. Meetings: 3rd Saturdays, 10:00 am, Coddington Mall, Santa Rosa. User group to explore new and existing programs and uses for the IIGS, to order equipment and material

as a group for quantity discounts and to encourage the use and development of the IIGS among current, new and potential users. Call: Aaron Lamar, president, 938-8479.

San Francisco Apple Core. Meetings: 2nd Tuesdays, 10 am, Daly City Library, 40 Wembley. BBS, SIGS, PD/SW library, Help List, Newsletter, more. Call: 398-2335/771-5830.

San Leandro Apple User Group. Meetings: 1st Thursdays, San Leandro HS, Rm. 213. New owners to experienced users welcome. AppleWorks, software and telecommunications SIGs meet monthly. Call: (415) 483-6046.

Society For The Prevention Of Cruelty To Apples. Meetings: 2nd Wednesdays, 7:30 pm, Fremont Main Library, 39770 Paseo Padre Pkwy. Call: Dean Fern, (415) 537-3439.

Tri Valley Apple II Users Group.

Meetings: 1st Thurs., 6:30 PM. Call Esther Farnstrom at (415) 829-3672 or Dan Balsey at (415) 828-6237 for meeting location.

ATARI

ABACUS (Atari Bay Area Computer Users Society). Meetings: 1st Saturdays, 19th Ave. Diner, 19th & Lincoln Aves., SF. Open to all Atari XL/XE and ST users. \$20/yr. Call: (415) 753-8483.

Bay Area Atari Users Group (BAAUG). Meetings: General meeting and ST users meeting 1st Mon., 7:00 pm, Bracher School, corner of Bowers and Chromite, Santa Clara. On 2nd Tuesdays. 8-bit users meet at H-P, Wolf and Pruneridge, Cupertino. BBS: (408) 247-1257.

COAST (California Original Atari ST Users Group). Meetings: 3rd Wednesdays, 7 pm, 2105 Bancroft, Berkeley. Call: (415) 945-1949.

Diablo Valley Atari Computer Enthusiasts (DACE). Meetings: 1st Thursdays, DACE supports all Atari computers. Newsletter, demos, raffles, DOMs, and programming SIGs. Call: Larry, (415) 689-5160.

Sacramento ST Users Group. Meetings: Second Wednesdays, 7 pm, Pac Bell Auditorium, 2700 Watt Ave., Sacramento. Supporting Atari ST and Mega ST computers.

(916) 944-1291. **San Leandro Computer Club.** Meetings: 1st Tuesdays, 8 pm, San Leandro Community Library. Keith Sammons, (415) 887-2008.

AT&T

AT&T Computer UNIX User Group. Meetings: 4th Wednesdays, 7 pm, AT&T Building, 1090 East Duane, Sunnyvale. Call: Thad Floryan, (408) 985-7108.

AT&T Computer Users Group - South Bay. Meetings: third Wed., 7:00 pm, AT&T Bldg., 1090 E. Duane, Sunnyvale, CA. Call: Joe Lipsig (408) 522-4114. BBS: (408) 462-6329.

North Bay AT&T Computer Users Group. Meetings: 1st Wed., 6:30 pm, AT&T building. Call: Joe Mahoney (415) 586-8376. BBS: (415) 829-6027.

Tri-Valley AT&T Computer Users' Group. Meetings: Third Thursdays, 6:30 pm, 5794 West Las Positas Blvd., Pleasanton. Call: Ed Novi, (415) 224-2996, Joe Mahoney, (415) 540-2219.

BLIND USERS GROUP

International Blind Users Group (IBUG). As a member you will receive 6 issues of Compu-Help-On-Disk as well as your own ID and password to CompuHelp. \$20/yr. Call: (916) 783-0364.

CAD/CAM

San Francisco Bay Area CAD-DCA User Group. Meetings: 3rd Wednesdays, 6:30 pm. Call: Lupe Chavarria, (415) 449-0230.

San Francisco/Marin AutoCAD Users Group. Meetings: 2nd Tuesday evenings. \$20 annual membership fee & newsletter. For further info, call Volker, 331-9466.

Sonoma County AutoCAD Users Group. Call (415) 777-9144 for info.

COMMODORE

ACCESS (Amiga + Commodore Computer Enthusiasts Society). Meetings: 2nd Thursdays, 7 pm, Livermore Airport terminal off I-580 Airway exit. Call: (415) 829-6053.

ACCESS (The Amiga And Commodore Computer Enthusiasts Society). Meetings: 3rd Tues., 7:30 pm, Community Room of Homestead Savings & Loan, 999 E. Stanley Blvd., Livermore, CA. Contact Ron Kremkow at (415) 449-1784.

Campbell Chapter of 64/More Commodore UG. Meetings: 4th Tues., BBS (408) 946-6154.

Commodore 64 Software Users Group For New Commodore Owners. One-on-one help for new owners. Meeting place & time TBA by members. Call (714) 531-2977 for info.

Commodore Connection Users Group. BBS (415) 458-1005.

Cupertino Chapter of 64/More Commodore UG. Meetings: 3rd Sat., BBS (408) 946-6154.

CWEST Bay Area Commodore User Group. Meetings: 3rd Thurs., Fort Mason, Bldg. C, Rm. 215. Supports C-64/128, Amiga. Write P.O. Box 146731, San Francisco, CA 94114-6731.

Diablo Valley CUG. Meetings: 3rd Thurs., 7:30 1331 Concord Ave, Concord, PO 27155, Concord, CA 94527. For info write: Box 27155, Concord, CA 94527. Or call (415) 932-2413.

F.U.N.H.U.G. - Fremont, Union City, Newark, Hayward User Group. Meetings: 3rd Thurs., 7:30 pm, Newark Public Library, 6300 Civic Terrace Ave., Newark, CA. A user-organized, user-operated user group not affiliated with any computer or software manufacturer or distributor.

Fairfield Commodore User Group. Meetings: 1st & 3rd Mon., Solano County Education Bldg. Write to P.O. Box 2778, Fairfield, CA 94533-9998 for info.

Marin Commodore Users Group. Meetings: 2nd Wednesdays, Redwood High. Call: 883-7748; BBS 883-2558—300/1200.

Mother Lode Commodore Users Group. Meetings: 2nd & 3rd Thursdays, 7:00 pm., Calaveras County Water District Board Room. Supports the Commodore PET, VIC, 64, Plus/4 C-16 & 128. Call: Larry Anderson, 754-5530.

Napa Valley Commodore Computer

Club. Meetings: Third Mondays, Rapoport's, 2225 Brown St., Napa. Write to: PO 2324, Napa, CA 94558.

North Valley Chapter of 64/More Commodore UG. Meetings: 2nd Sat., BBS (408) 946-6154.

PLUG (The Plus/4 Users Group). No regular meetings. Over 800 members internationally. Write to P.O. Box 1001, Monterey, CA 93942 for info.

San Jose Chapter of 64/More Commodore UG. Meetings: 1st Sun., BBS (408) 946-6154.

Silicon Valley Commodore Club. Meetings: 4th Wed., 7 pm, Hewlett-Packard, 5301 Stevens Creek at Lawrence & 280. C-64, C-128, & Amiga.

COMPUTER ASSOCIATES

Computer Associates Users Group. Meetings: Third Wednesday of the first month of the quarter, 238 Texas St., San Francisco. Come share ideas and information with other local users of Computer Associates Accounting Software. Call: Beth E. Markus, (415) 864-6770.

DATEASE

Bay Area DataEase Users Group. Meetings alternate between San Francisco and Palo Alto. Contact Kermit Carter at (415) 945-7817 for info.

DBASE

dBASE SIG/SFPCUG. Meetings: 3rd Thursdays, 7:30 pm, 6 No. San Pedro Rd., San Rafael. Call: John Stephenson, (415) 488-0342.

dBASE Users Group of Marin & Northbay. Meetings: monthly, call (415) 488-0342 for info. Open membership, beginners through developers.

dbDVLPRS. Meetings: 2240 Buchanan, Ste. 5, San Francisco. Includes dBASE II, III, VI, Clipper, Foxbase, dBase, Quicksilver and others. Call: Bruce Leandro, (415) 923-0659.

DESKTOP PUBLISHING

Bay Area Desktop Publishing User's Group. Meetings: Thursdays at 2601 College Ave., Berkeley. For more info call Dr. C.J. Wallia at (415) 848-8200.

Desktop Publishing SIG/GMUG. Meetings: 1st Tuesdays, 7 pm, San Francisco Business Times Building, 325 Fifth St., San Francisco. Call: 641-GMUG

Desktop Publishing SIG/SFPCUG. Meetings: 4th Tuesdays, 7:30 pm, 179 Parnassus Ave., SF. Call: Phil Smith, (415) 566-3648.

First Publisher User Group. Members make up 8 1/2 x 11 formats for newsletters & tip sheets. \$35 annual membership. Contact Raul Ibanez (415) 550-0785.

PC Publishers Of Northern California. Meetings: 2nd Thursdays, 7 pm, 1415 Valencia St., San Francisco Newsletter, telephone hotline, reference library, education. Support Ventura, PC PageMaker, etc. Intro membership: \$24/yr. Information: Al, (415) 661-9270 or Donna, (415) 826-6640.

San Mateo Ventura Users' Group. Meetings: 2nd Mondays, 7:00-9:30 pm, 619 Bradford, Redwood City. Workshops, lectures, demonstrations of new techniques, shortcuts. Call: Eleanor Church, (415) 726-3181, or Pam Sheble, (415) 574-2003.

Ventura Desktop Publishing Users Group. Meeting: 1st Tuesday, 7-9:00 pm, 1650 S. Amphlett Blvd., San Mateo. Newly formed group. Call Eleanor Church at (415) 726-3181, or Pam Sheble at (415) 574-2003 for information.

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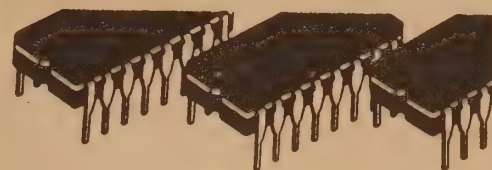
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DYNABYTE

Dynabyte - Tahoe City Dynabyte Users Group. Swap, buy/sell - boards, parts, units. Write to Drawer 2629, Olympic Valley, CA 95730 for info.

EAGLE

Eagle Computer Users Group. Meetings: 2nd Sat., 9:00-12 noon Tandem Computer, 10435 N. Tantau Ave., Cupertino. Call: (408)972-1965.

EASYTRIEVE

Easytrieve Plus Users Group. Next meeting: June 14, Hyatt, Oakland. Call Debbie at Pansophic, (415)573-7100. All users welcome.

EPSON

Bay Area Epson Salts. Meetings: First Tuesdays, 7:30 pm, 2611 Broadway, Redwood City. Call: Joe, (415)364-0232; or Tom, (415)992-5475.

Epson Users of San Francisco Bay Area. Meetings: 1st Thurs., 7-10 pm, Fort Mason, Bldg. C, Rm. 216, San Francisco, CA. For users of Epson (QX, Equity, PX-8). Presentations, support network, newsletter, public domain software.

EXPERT SYSTEMS

Bay Area Expert Systems In Financial Services. Meetings: 4th Wednesdays, downtown San Francisco. Open to managers, programmers, and analysts in the financial services industry. Call: Blair Hesling, (415)624-3049.

FOXBASE+

FoxBase+ User Group. PO 20607, Oakland, CA 94620. New group now forming. Call Rachel Cohen, (415)465-3570.

GAVILAN

Gavilan User Group. Meetings: 2nd Thurs., 7 pm, Lockheed Bldg. 162. Call (408)379-2774 for info.

HEATH

Bay Area Heath User Group (BAHUG). Meetings: 2nd Tuesdays, 7 pm, 2001 Middlefield Rd., Redwood City. Call: Ed Hayes, (415)326-3311.

HYPERCARD

HyperCard SIG/GMUG. Meetings: 2nd Wednesdays, 7 pm, 78-A Mars St., San Francisco. Call: 641-GMUG.

HyperCard SIG/SEF. Meetings: First Thursdays, 7 pm, Foothill College.

David Gewirtz, (415)345-4620, or (415)854-7219.

IBM AND COMPATIBLES

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AI - Expert Systems for Business (ESB). Investigate real business Expert System solutions for PC's. Guest speakers, discussions. Newsletter \$18/yr, \$26/yr bus. Call 564-6669 for info.

Bay Area TimeStar Users Group (BATUG). Meetings: 2nd Thursdays, 7:30 pm. Call: (408)983-4930.

Beginners SIG/SFPCUG. Meetings: 3rd Mondays, 7 pm, Chancellor's Conf. Rm., UCSF, 3333 California St.,

SF. Call: (415)211-9166.

Berkeley PC/Compatible User Group. Meetings: 2nd Mondays, 7:00 pm, 2618 Telegraph Ave., Berkeley. No fee, bulletin board, public domain library. Call: Mel, (415)526-4033.

C Language SIG/SFPCUG. Meetings: 2nd Mondays, 6:30 pm, Kam's Restaurant 2068 Center St., Berkeley. Call: Debee Norling, (415)644-1855.

Columbia SIG/SFPCUG. Meetings: 3rd Mondays, 7 pm, Chancellor's Conf. Rm., UCSF, 3333 California St., SF. Call: Dennis Tye, (415)566-0587.

CUE Club. MS-DOS machines. SIGs for other computers. BBS:(209)239-9853. For more info call (209)858-4401.

DataPerfect SIG/SFPCUG. Meetings: 2nd Mondays, 7 pm, Kam's Restaurant, 2068 Center St., Berkeley. Call: Christy Quinn (415)644-1855.

dBASE SIG/SFPCUG. Meetings: 3rd Thursdays, 7:30 pm, 6 No. San Pedro Rd., San Rafael. Call: John Stephenson, (415)488-0342.

Desktop Publishing SIG/SFPCUG. Meetings: 4th Tuesdays, 7:30 pm, 179 Parnassus Ave., SF. Call: Phil Smith, (415)566-3648.

Diablo Valley PC Users Group. Meetings: Walnut Creek, CA. Write: P.O. Box 8040, #117, Walnut Creek, CA 94596.

East Bay Fog. Meetings: Monthly meetings, Apostleship of the Sea, 600 Terminal St., Oakland. Newsletter, BBS. Call (415)272-9099 for more info.

Enable SIG/SFPCUG. Meetings: 2nd Wednesdays, 7:30 pm, Walnut Creek. Call: Sandi Baker, (415)946-1716.

FUNHUG-PC. Meetings: 3rd Wednesdays, 7:30 pm, Fremont Library, 39770 Paseo Padre Parkway, Fremont, in the Meeting Room. Mainly just the MS and PC DOS world. Send SAS to Russ Fischer, 2792 Arlington Place, Fremont 94555.

IBM & Compatibles Users Group (ICUG). Meetings: A mail-based user group with possible meetings. Not for PCjr's. \$8/yr. Write: Dan Tuma, 30 Arjant Ct., Alamo, CA 94507-2041.

IBM Compatible Users Group. Meetings: monthly, call (415)969-6916 for info 7-10 PM.

IBM PC Users' Group Of The Redwoods (PCUGR). Meetings: 2nd Thursdays, 7 pm, Santa Rosa Vets Memorial, East Dining Rm. Newsletter, BBS, public domain & shareware disk library, \$25/yr. Call: (707)527-USER.

IBM Technical SIG/SEF. Teknowledge. Call for dates and time. Call: Mike Schmitt, (408)244-6826. or (415)854-7219.

Kay+Fun Peninsula Computer Club. Meetings: 2nd Thursdays, 7:30 PM. Social Room, 222 Laurel St., San Carlos. CP/M + DOS library. BBS: (415)572-8219. Call: 593-9981.

Lotus SIG/SFPCUG. Meetings: 3rd Mondays, 7 pm, Chancellor's Conf. Rm., UCSF, 3333 California St., SF. Call: Jerry Stern, (415)282-4100.

Marin-Sonoma PC Users Group (MSPCUG). Meetings: Last Tuesdays, Guzman Hall, Dominican College, Grand Avenue., San Rafael. Call: (415)491-HAWK.

Mid-Peninsula IBM-Club. For IBM employees only. Call Scott Maiden for info: (415)855-4509.

Modula-2 SIG/SFPCUG. Meetings: 3rd Thursdays, 7:30 pm, Call: Richard Lesnick, (415)398-3587.

MS Word SIG/SFPCUG. 3rd Mondays, 6:30 pm, Chancellor's Conference Room, UCSF, 3333 California St., SF. Vic Saravia (415)929-1993.

NewViews SIG/SFPCUG. Meetings: 4th Mondays, 7 pm, 179 Parnassus Ave., SF. Call: G. Watson, (415)398-3587.

OtherPerfect SIG/SFPCUG. Meetings: 2nd Mondays, 7 pm, Kam's Restaurant, 2068 Center St., Berkeley. Call: Quisty Quinn, (415)644-1855.

PC Clubhouse. Meetings: 1st Fridays, 8 pm, Cal State Hayward, Rm. 2078, Heiklejohn Hall. 2000 disk public library, expert help, software/hardware demos, \$24/yr. Call: (415)538-2449 or 846-3575.

PC UNIX SIG. Meetings: 1st Wednesdays, 7 pm, AT&T Training Center, 1090 E. Duane Ave., Sunnyvale. Learn more about such UNIX versions as Microport, XENIX and Minix. Starting a library of public domain source code. Call: Dan Kionka, (408)432-1300.

Sacramento PC User Group. Meetings: For information call Jackie Jansen at (916)383-6900.

San Francisco Computer Society. Meetings: 1st Mon., 7:00 PM. Laguna Honda School Conference Room (first floor), 1350 7th Avenue, San Francisco. MS-DOS machines, Osborne, Kaypro, Morrow. Call Ralph Gallagher 929-0252.

San Francisco PC Users Group. Meetings: 3rd Mondays, 7:30 pm, Auditorium, UCSF, Laurel Heights, 3333 California St., SF. Call: (415)221-9166. BBS: (415)621-2609.

San Francisco PCjr Users Group (SFPCjrUG). Meetings: First Sundays, 7:30 pm, Rm. C205, Fort Mason Center, San Francisco. Demonstrations and discussions, club library, disks for sale. Call: John King, 472-7035.

Santa Cruz Computer Society. Meetings: 3rd Thursdays, 7 pm, Santa Cruz County Office of Education, 809 Bay Avenue, Suite H, Capitola. Call: 479-1180.

Silicon Valley Computer Society. Meetings: 4th Wed., 7:30 pm, Oak Room, at Hewlett Packard, on Pruneridge in Cupertino. Call Kent Stafford for info at (408)286-2969.

Silicon Valley FOG. Meetings: 3rd Wed., 7:30 pm, Saratoga Community Library, 13650 Saratoga Ave.

Solano Community PC Users Group. Meetings: 3rd Monday, 7 pm, Fairfield High School.

Solomon User Group Of Silicon Valley. Meetings: Wednesday, August 10, 6:30 pm, Conveyor And Storage Dynamics, 2581 Leghorn St., Mt. View. Call Grialva Associates, 39899 Balentine Dr., Suite 175, Newark, CA 94560; (415)659-1515.

South Bay AT&T PC UG. Meetings: Call for info. Call (408)226-0116.

South Bay WordPerfect User Group. Meetings: Monthly, 13650 Saratoga Ave., Saratoga. Call: Martin Van Derpool, (408)238-8434.

South County PC Users Group. Meetings: Round Table Pizza Restaurant, 22457 Foothill Blvd., Hayward. Call: R.A. McCloud, (415)537-9899.

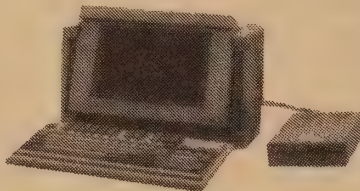
Teachers SIG/SFPCUG. Meetings: 3rd Mondays, 7:30 pm, Chancellor's Conf. Rm., UCSF, 3333 California St., SF. Call: Margaret Gwathmey, (415)982-4221.

TRS Nybbilers. Meetings: 2nd Friday, 8 pm, Chabot College, 2555 Hesperian Blvd., Rm. 600, Hayward. MS/DOS, CP/M, laptops, CoCo's, Mod 1, 3, 4; Mod 2, 12, 16, 6000. PD software education modules, problem solving committee.

Valley Computer Club IBM PC Users Group. Meetings: 3rd Wed., 6 pm, Xerox Bldg. 475 Oakmead Pky, Sunnyvale, CA. \$24/yr member. Monthly VPUG News, access rights to VPUG-SIG Advice on desktop pub. techniques, new products, bugs, etc.

WordPerfect SIG/SFPCUG. Meetings: 3rd Mondays, 7 pm, Chancellor's Conf. Rm., UCSF, 3333 California St., SF. Call: Debbie Foster, (415)285-4534.

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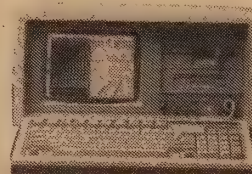
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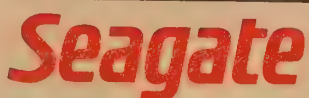


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San Francisco INMAGIC User Group. INMAGIC Meetings: Monthly. Call for dates and times. Call: Dana C. Ellingen, 423-4582.

KAYPRO

BAKUP. Meetings: 3rd Tuesdays, 7:30 pm, Albany Senior Center, 846 Masonic Ave., Albany. Call: Bob Athey, (415)526-3541.

Kay+Fun Peninsula Computer Club. Meetings: 7:30 pm, Social Room, 222 Laurel St., San Carlos. CP/M + DOS library. BBS: (415)572-8219. Call: 593-9981.

San Francisco Computer Society. Meetings: 1st Monday, 7:00 pm, Homestead S&L, 5757 Geary Blvd., San Francisco CPM and DOS machines. No BBS. Call Ralph Gallagher, (415)929-0252 for information.

LAPTOPS

Bay HPX, Laptops, and Handhelds. Meetings: 2nd Saturdays. Call: Jim Horn, (707)794-3130 or Michael Felsenstein, (415)564-8279.

MACINTOSH

A32, The Association Of Apple 32 Users. Meetings: 2nd Saturdays, GTE cafeteria, Mountain View. Membership includes monthly meetings, access to Disk of the Month, full BBS privileges, the ICON newsletter, SIGs, discounts, and much more. Call: 263-0398.

APX, Inc. Macintosh. A national intercorporate computer users information service with several communications channels including an electronic forum on MacNet, newsletters, and local and national meetings and special panels. Several local chapters exist, you can start one too. Call: (408)745-0665, or write to: Mike Bailey, APX, 370 Altair, PO 175, Sunnyvale, CA 94086.

Bay Area MacForum. Meetings: 3rd Saturdays, noon, Daly City Library, 40 Wembeleby. BBS, SIGS, PD/SW library, Help List, Newsletter, Newcomers Meeting, more. Call: (415)771-5830/398-2335.

Berkeley Macintosh User Group (BMUG). Meetings: every Thurs., 6 pm, Physical Sciences Lecture Hall,

UC Berkeley Campus. SIG meetings on Mondays, Tuesdays & Wednesdays. Call for this week's topic. (415) 849-9114. BMUG, 1442A Walnut St., #62, Berkeley, CA 94709.

Christian Macintosh User Group, San Francisco Chapter. Meetings: 2nd Thurs., San Francisco. Newsletter and support available. Contact Rick Thrasher at (408)437-1913. Bible Study and DTP SIGS.

Christian Macintosh User Group, Silicon Valley Chapter. Meetings: 1st Thurs., San Jose. Newsletter and support available. Contact Rick Thrasher at (408)437-1913.

Desktop Publishing SIG/GMUG. Meetings: 1st Tuesdays, 7 pm, San Francisco Business Times Building, 325 Fifth St., San Francisco. Call: 641-GMUG.

Diablo Valley Apple Users. Meetings: 1st & 3rd Fri., 7 pm, Willow Creek Ctr., 1026 Mohr Lane, Concord, CA. SIG's meet monthly. Featuring library of pub. domain software & club's DOM's. Newsletter, demos, group buys hard/software.

EBMUG (East Bay Macintosh Users Group). Meetings: 3rd Tuesdays, 7:30 pm, 724 Allston Way (@4th) near University Ave., Berkeley. Members receive free PD software. Bring blank disk. Meetings open to everyone. Call: Terry Pennington, (415)486-0147.

GMUG (San Francisco's Macintosh User Group for Gays and Lesbians). Meetings: 3rd Wednesdays, 7:30 pm., Call: 641-GMUG.

HyperCard SIG/GMUG. Meetings: 7 pm., 78 A Mars St., San Francisco. Call: 641-GMUG.

Mac Diablo Users Group (MDUG). Meetings: 3rd Tues., Community Room, Glendale Federal Savings, 3101 Crow Canyon Road, San Ramon.

MacCruisers—Santa Cruz. Meetings: 2nd Wed., Jade Street Community Ctr. at 45th Ave., Capitola, CA.

Macintosh SIG/SEF. Meetings: 7 pm, 2nd Tuesdays, Apple Cafeteria. Call for dates and time. Tony Meadow, (415)644-9400.

Macintosh Users Of ComputerWare (MUCoW). Meetings: 2nd & 4th Wednesdays, 7:00 pm, Above Com-

puterWare store, 490 California Ave., Palo Alto. Call: (415)496-1051 or 496-1033.

MacNexus—Sacramento's Macintosh Users Group. Annual dues, \$30, includes monthly newsletter. Contact: MacNexus, PO 163058, Sacramento, CA 95816; (916)448-6481.

Macs Of Marin (MOM). Meetings: 2nd Thursdays, 7 pm, Redwood High School, 395 Doherty, Larkspur. Call: Steve Salzman, 459-5707.

Silicon Valley Computer Society's Macintosh SIG. First meeting: September 21, 7:30 pm, 6th floor offices of Arthur Young and Co., Mitsubishi Plaza Bank Building, 55 Almaden Blvd., San Jose. A forum for shared ideas. First meeting will be a demonstration of HyperCard. Other demos are planned for future meetings. Call: Dennis Dawson, (408)947-5550.

Stanford Macintosh Users' Group (SMUG). Stanford community membership: \$25; public membership: \$35 per year. Call: 723-SMUG. BBS: (415) 723-7685.

TI-West. Meetings: 2nd Fri., 8 pm, Chabot College, Rm. 600, 25555 Hesperian Blvd., Hayward, CA. Access to a variety of pub. domain software, education modules "problem solving" peripheral committee.

Tri-Valley Macintosh User's Group (TMUG). Meetings: 1st Thursdays, 7 pm, 4695 Chabot Dr., Rm 114, Hacienda Business Park, Pleasanton. Newsletter, large P/D library. Call: James (415)426-8756 eves, Mike, (415)838-6165.

MICROSOFT

Mac Diablo Users Group (MDUG). Meetings: 3rd Tuesday, 7:30 pm, Community Room, Glendale Federal Savings, 3101 E. Crow Canyon Rd., San Ramon. Small, helpful group.

Microsoft Word Users Group. Meetings: 4th Mondays, 7:30 pm-9:30 pm, Hewlett-Packard Cupertino, Oak Room Bldg., 48 Pruneridge, 100 yds. east of Wolfe off Hwy 280. August 22: Chris Donner, Pres. Access Softek on DRAGNET for Text Retrieval and Management. Call: Bill West, (408)356-8805.

Mirosoft Word SIG of the SVCS. Contact Bill West (408)356-8805.

MINDSET

San Francisco Mindset Users Group. Call: (408)270-0251.

MORROW

BAMDUA (Bay Area Micro Decision Users Assoc.). Meetings: 3rd Tues., 7:30 pm, Albany Senior Center, 846 Masonic Street (just north of Solano) in Albany, CA. Voice: (415) 534-4257. BBS: (415) 654-3882. P.O. Box 5152 Berkeley CA 94705.

San Francisco Computer Society. Meetings: 1st Mon., 7:00 PM. Homestead S&L, 5757 Geary Blvd., San Francisco. MS-DOS machines, Osborne, Kaypro, Morrow. Call Ralph Gallagher 929-0252.

NEC

Bay Area NEC/100 Users Group. Meetings: 2nd and 4th Wednesdays. Locations vary. For those interested in laptops, especially Kyocera 80C85 type (NEC 8201a, Radio Shack Model 100 or 102). Call (415)658-1889.

NOVELL

Novell Users Group. Meetings: Third Wednesdays, 6:30 pm, Coco's restaurant, 1305 South Mary, Sunnyvale. Newsletter, bulletin board, product demos, assistance for beginners. Call: Bill Strouse, (408)453-3321 days; modem, 24 hrs: (408)453-3326.

ORACLE

Northern California Oracle UG. Meetings: Call (408)738-8330 for info. Meets every 3 months at different Bay Area locations. Newsletter published between meetings.

OSBORNE

San Francisco Computer Society. Meetings: 1st Monday, 7:00 pm, Homestead S&L, 5757 Geary Blvd., San Francisco. CPM and DOS machines. No BBS. Call Ralph Gallagher, (415)929-025 for information.

PARADOX

Silicon Valley Paradox Users Group. Meetings: 3rd Tuesdays, except December. For information, Call: Emily Alford, (408)285-0348, or LaTulipe at (408)646-0297.

PROGRAMMING LANGUAGES

APL Bay Area Users' Group. Meetings: 2nd Monday, 6:30 pm, I.P. Associates, 425 Sherman Ave., Suite 200, Palo Alto.

Bay Area Users Of Progress Software. Meetings: 3rd Wednesdays, 7:30 pm. 100 member group discusses and shares Progress programming tips and techniques. Call: John Campell, (415)857-0686.

C Language SIG/SFPCUG. Meetings: 2nd Mondays, 6:30 pm, Kam's Restaurant 2068 Center St., Berkeley. Call: Debee Norling, (415)644-1855.

CC County Programmers Group. For info write: 3115 Elizabeth Lane, Antioch, CA 94509.

Forth Interest Group of Silicon Valley. Meetings: 4th Sat., 1 pm, Oak Room, at Hewlett-Packard, on Pruneridge in Cupertino. Call George Shaw at (415)276-5953 for info.

Forth Interest Group, North Bay Chapter. Meetings: 2nd Sat., 1 to 5 pm, South Berkeley Community Library, corner of Russell and Martin Luther King Junior Way. One block north of Ashby BART station. Contact George Shaw (415)276-5953.

Modula-2 SIG/SFPCUG. Meetings: 3rd Thursdays, 7:30 pm. Call: Richard Lesnick, (415)398-3587.

PIE (Programming and Interfacing Enthusiasts). Five SIGS for Mac, Apple II, and PC. PIE BBS open to member and non-members. Call: Duane B. McGhie, (408)252-4944.

Prolog Forum. Meetings: Monthly,

2nd Thursday 7:00 pm, Belmont and various locations. Prolog Forum is a group dedicated to supporting users of the Prolog computer language in artificial intelligence. Call Mark A. Epper-son at (415)594-9981.

SEF OOP SIG. Meeting: Third Tues., 7 pm, Parc Place Systems, 2400 Geng Rd., Palo Alto. Call: Dean Ritz, (415)691-6727 or (415)854-7219.

R:BASE

East Bay User Group. Meetings: Last Thursday of each month. For location and time, Call: Scott, 451-5316. endro Computer Club..

R:BASE User Group Of The Redwoods. Meetings: Third Wednesdays, 3 pm, Sonoma/Marin County rotating meeting places. Call: Jim Ray, (707)886-5315.

Northern California User Group. Meetings: Every 3 months. For schedule, Call: Ken Lebeiko, 881-2652.

Peninsula User Group. Meetings: First Wednesdays. For location and time, Call: Don Whitecar, 592-5033.

TANDY/RADIO SHACK

BYTE Bandits of America. Meetings: Campbell. Call (408)379-2774 for info.

CoCoByte. Meetings: Last Saturdays, 2 pm-4 pm. Supporting the Tandy Color Computer 11, 2 or 3 with Spanish, English & French software. Write to: CoCoByte, c/o Fabian Rodriguez, A.A. 5976, Cali-COLOMBIA.

Model 100, 102 & 200 Support. Meetings: Int'l support by mail, voice & BBS. Free on-line weekly news letter. Write Club 100 984 Hawthorne Dr., Walnut Creek, CA 94596. Or call (415)937-5039.

Tandy 1000 (The Mug). Mail-based user group w/ monthly newsletter. Not for PC jrs. Members communicate through newsletter. \$8/yr. fee; checks to: Daniel Tuma, 300 Arjant Ct., Alamo, CA 94507-2041.

TRS Nybblers. Meetings: 2nd Fri., 8 pm, Chabot College, 25555 Hesperian Blvd., Hayward. MS-DOS, CPM, laptops, Mod 1, 3, 4, Mod 2, 12, 16, 6000. Bud Gallagher (415)522-

5960 or Bruce Jarvis (415)846-3575.

REVELATION

Bay Area Revelation UG. Meetings: 1st Tues., Call (415)759-1210.

ROBOTICS

Home Robots Now! Meetings: 2nd Thursdays. A two-year-old user group currently working on an autonomous robot for navigating in a house. Call: James P. Cruse, (408)475-7444.

SANYO

Sanyo PC Hackers. Meetings: 1st Wed., 7 pm, Mercury Room, Mercury Savings & Loan, 99 El Camino Real, Menlo Park.

SOLOMON

San Francisco Solomon III Users Group. Meetings: last Wed., odd months 6-9 pm, Price Waterhouse, 555 California St. 36th Fl., San Francisco. Annual membership - \$50; corp. membership - \$75.

Solomon User Group of Silicon Valley. Meetings: For info contact Grhalva Associates, 39899 Balentine Dr., Suite 175, Newark CA 94560.

SQL

SQL_BAYS, The Bay Area SQLBase User Group. Meetings: First Thursdays, 6-9 pm, 394 Pacific Ave., Lower Level, San Francisco. Review client/server computing with

Gupta Technologies SQLBase database server. Fresh topic/speaker/demo. Call: Todd Ziesing or Ric Galgiardi, (415)731-2201.

SUN

Sun User Group. Call: (415)336-4343.

S—100

S—100 Business Users Group. Meetings: 4th Tues., 7:30 pm, Santa Clara Univ., Rm. 101, Bannan Engineering Bldg. CP/M & MS-DOS libraries. BBS: (408)262-5150, 8-N-1, 2400/1200/300.

TEXAS INSTRUMENTS

Bay Cities User Group. Meetings: 1st, 3rd, 5th Wednesdays, 7:30 pm, 1637 Morgan, Mt. View. Call: Jack, (415)964-4344.

Brea 99'ers Users Group. Meetings: 1st Mon., 7:30 pm, Mercury Savings, La Habra, CA.

San Francisco 99ers. Meetings: 3rd Saturdays, 3751 Elston Ave. Call: Fred, (415)530-8335.

Thousand Oaks Personal Computer Club (TOPCC). Meetings: monthly. Call: (714)686-0336.

TIMEX/SINCLAIR

Timex Sinclair East Bay Z80 Users Group (TSEBZUG). Russ English, (415)465-3116.

Timex Sinclair Peninsula Users Group (TSPUG). Contact George Mockridge, (408)878-1773.

Timex/Sinclair Users of Silicon Valley (GUTS/SV). Meetings: each Sat., 9am, Stanford Univ., Jordan Hall (quadrangle), Math Bldg. RM 380C. SW library & newsletter. For topic check PDSE BBS in Sunnyvale (408)735-7390, 300/1200, 8-N-1, 24 hrs.

UNIFY

Unify Users Group. Information exchange, presentations and problem solving related to Unify products. Email distribution is available for those connected to USENTE or UUCP mail at UUg-dist@mrspec. Call: Steven List 961-6112.

UNIX

SVNet. UNIX User Group. UNIX Meetings: 3rd Tuesdays, 10500 DeAnza, Cupertino. Talks on UNIX topics, books, and reviews. Call: Ralph Barker, (408)248-8649.

VENTURA PUBLISHER

San Mateo Ventura Users' Group. Meetings: 2nd Mondays, 7:00-9:30 pm, 619 Bradford, Redwood City. Workshops, lectures, demonstrations of new techniques, shortcuts. Call: Eleanor Church, (415)726-3181.

Ventura Desktop Publishing Users Group. Meeting: 1st Tuesday, 7-9:00 pm, 1650 S. Amphlett Blvd., San Mateo. Newly formed group. Call Eleanor Church at (415)726-3181, or Pam Sheble at (415)574-2003 for information.

Ventura Publisher User Group (VPUG, Inc.). Meetings: 3rd Wednesdays, 6-9 pm, Hewlett-Packard, Oak Room, Wolfe Road at Pruneridge, Cupertino. Workshop, Q&A, HW/SW demonstrations. Monthly 70-page mag, BBS, discounts, etc. \$36/yr. Call: (408)227-5030.

VPUG (Ventura Publisher User Group) Meetings: 3rd Mon., 6:30 pm, Fort Mason, Bldg. A., Rm. 5 San Francisco, CA.

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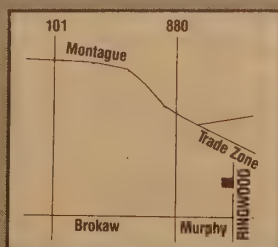
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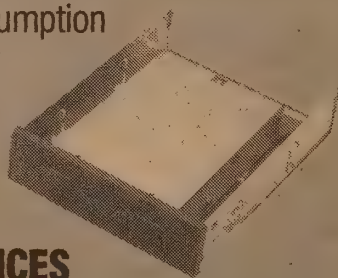
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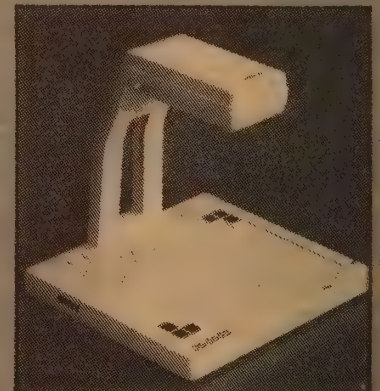
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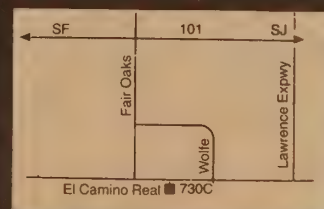
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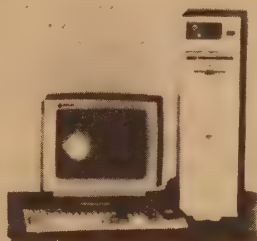
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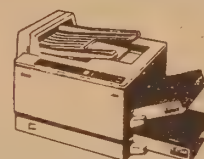


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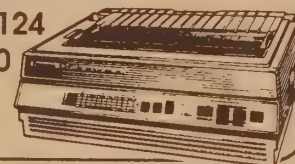
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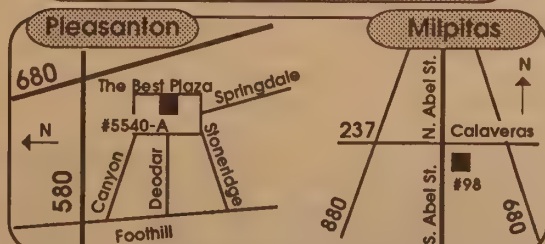
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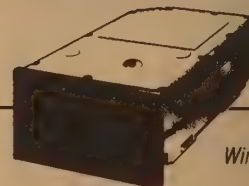
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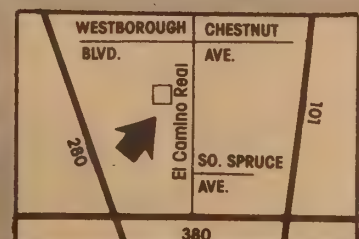
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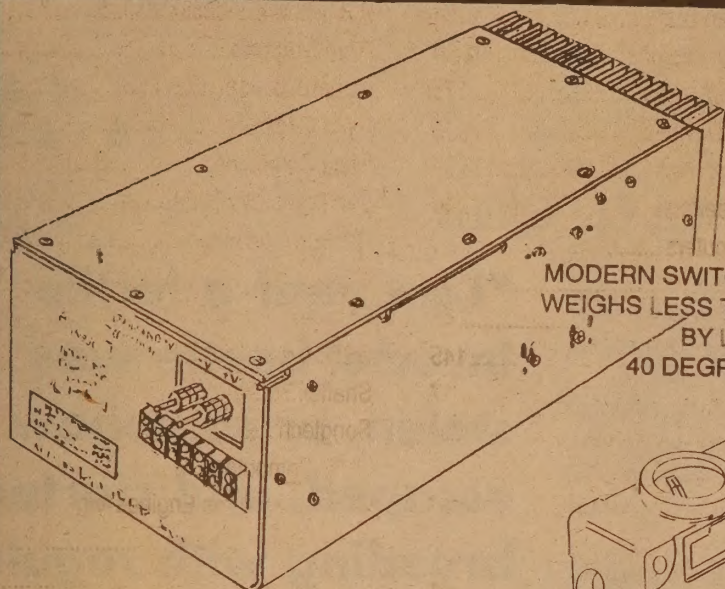
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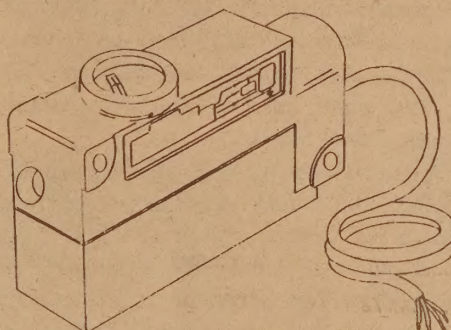
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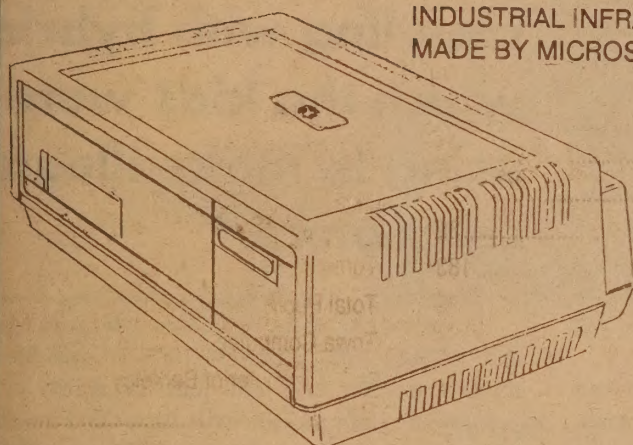
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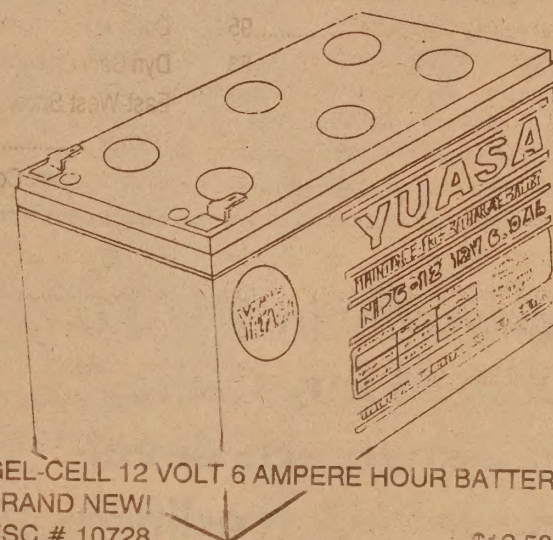
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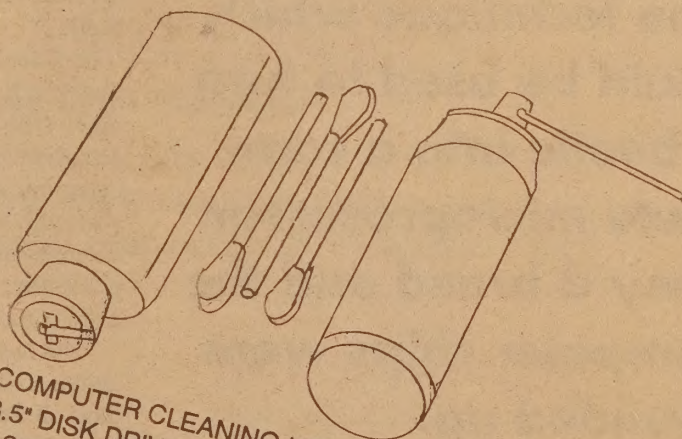


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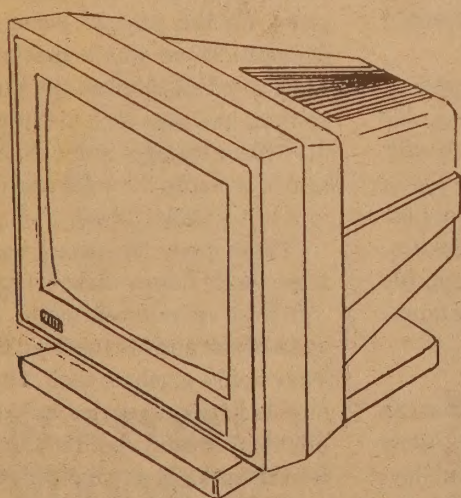


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THE YEAR 2030



The Age of Spit And Vinegar—And Computers That Eat Chips

I had heard about room 1132 at the Cambridge Hyatt in Boston, but it wasn't until I stay there and jumped into the worm hole that I believed any of the tales.

It's on one of the couches. A worm hole into which you are tossed 40 years into the future, 2030 to be exact. Nobody will believe this story, but most of it is true. I say "most of it" since I bumped my head on the return trip.

The return worm hole is in the second seat of a roller coaster that was installed on the site of the Boston Aquarium near what was once a Marriott hotel. It's a dangerous move, because you have to stand up right on one of the curves. I knew all this because all of us time travelers are given a little tip

Apparently in 2010 a couple of guys who quit Genentech developed a DNA modification technique which could be used to turn a beetle into a complete microprocessor. They'd breed and the computer chips were rounded up.

sheet so we can get back to our own time to tell these tales.

I knew I had to write a column for *MicroTimes* and when I arrived in 2030 I immediately went to the local ComputerLand store. Only it wasn't a ComputerLand anymore. It was K-Mart Computer Center.

Inside were a couple of college kids from the Boston Institute of Technology, a school wholly owned by Lotus Development. Lotus had been buying property in Boston over the past years, and by 2030 had become a major landowner. They spun off the software part of the business as Lotus Software and kept the parent company, Lotus Development, as a condo developer in Massachusetts.

A couple of years before I arrived Jim Manzi was elected Mayor in a disputed election and was unfor-

tunately killed by a runaway garbage truck two nights later. The police suspected foul play but were unwilling to investigate, calling it an unfortunate accident.

The chief of police, Maximilian O'Reilly, said that it was typical of Boston driving, and asked why Manzi was in the middle of the street anyway. The runner up, Vito Lucci, head of the Lucci Cartage Company, was named Mayor.

"A lot of things have changed," a sales clerk at K-Mart Computers told me. He said he remembers a columnist named Dvorak who now wrote ad copy and was part owner of Laser Sky Write, a wild advertising medium where the sky is burned by discarded surplus Star Wars lasers. A brown smudge, visible from earth, is actually carved in the ozone layer. At any time you could look up and see ads in the sky. Some people thought the whole idea was tasteless, but it turned out the technique, apparently developed by Dvorak's partner, rebuilt the ozone layer while providing useful advertising.

The sales clerk continued, "Since the invention of the Bug 2000 organic microprocessor, the industry has changed completely. This year Insectel expects to release its Bug 8888, the latest multi-processing beetle."

Apparently in 2010 a couple of guys who quit Genentech developed a DNA modification technique which could be used to turn a beetle into a complete microprocessor. They'd breed and the computer chips were rounded up. Within a few years the right circuit was designed, the feet and antennae of the bug acting as contacts for the microprocessor "brain." By 2020 I/O and even a video display unit were embodied in the bugs.

"The new bug 8888 is supposed to be capable of 100 megaflops," said the clerk. "It's amazing. Almost all the TV sets in the country are crawling with beetles and roaches for special effects. Last year a fertile Insectel beetle was stolen, or somehow escaped, and started breeding with regular beetles. The whole countryside was crawling with hybrids which the kids were using to make illegal computers."

"Illegal!?!?"

"Yes, all the computers required a license after the Hacker Wars of 1998, when nearly all the computers in the Northern Hemisphere were stopped on Mayday by a group of hackers who determined that the once popular operating system, OS/2—is that before or after your time?—had a peculiar hackable flaw called a Sys Trap Door. This allowed self running code to reside in a section of the program and communicate with other pieces of code planted through the backdoor of other OS/2 machines. In unison all the OS/2 systems on every platform went down at once. In 1997 the world was 80% OS/2 on all platforms. Most machines were controlled or linked to OS/2."

"You're kidding!" (I may be wrong about all this from the head bump.)

"Last year a fertile Insectel beetle was stolen, or somehow escaped, and started breeding with regular beetles. The whole countryside was crawling with hybrids which the kids were using to make illegal computers."

"It was a disaster for Bill Gates, who sold Microsoft to IBM for \$20 billion in 1995. He was blamed for the peculiar trap door and the ability of the program to communicate with other OS/2 modules. He was supposed to run for public office in 1998, but was ridiculed and blamed for the fiasco and hacker attack. He moved to Tokyo a year later and lives there still, now an embittered 73-year-old recluse who supposedly has maniacally collected all his saliva for the past 20 years, saying it gives him strength. There was a special on *60 Minutes* last Sunday which showed the huge clear glass tank of spittum he keeps on a hillside tank farm outside of his Tokyo cottage. Some of the local Japanese are said to worship the stuff, and deals have been made to sell it if Gates dies."

"Those crazy Japanese," I said as I looked at the selection of floppy disks for sale. "What are these?"

"Those are micro-floppies. They are the size of a grain of salt and are ingested by the Bug computers. They hold a gigabyte each. The new double density ones hold two gigabytes, but a lot of people just chip off the little mini notch in the one gigabyte disk and find it works in a two gigabyte beetle."

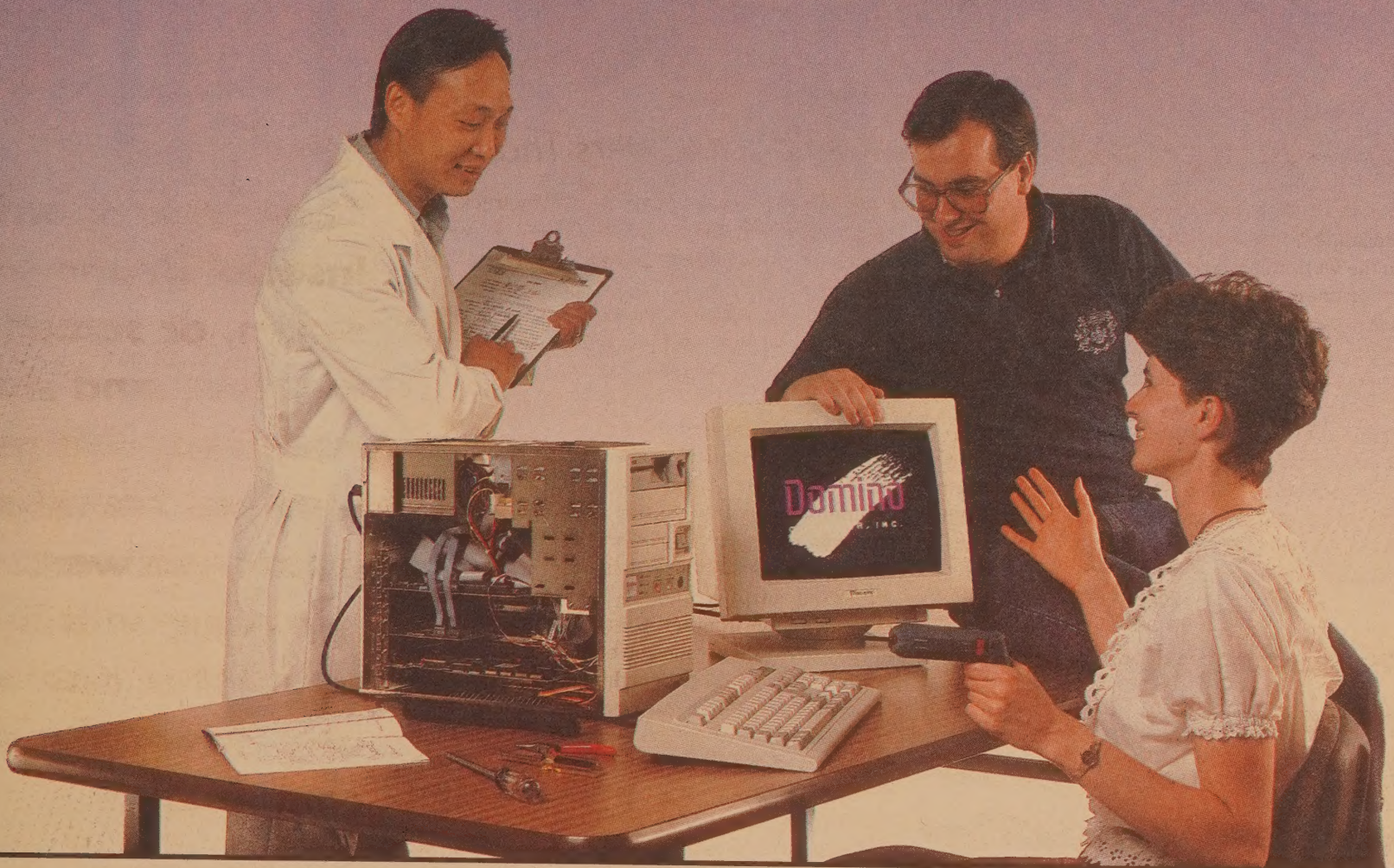
My time was running short, so I gathered as many maps as I could find, so when I returned I could make more efficient use of the four hours that I can stay in the future without dissolving. At least, four hours is what it says on the brochure.

So I rushed over to the roller coaster and followed the procedure. When I returned I conked myself on a cheap vase in the hotel room near the worm hole couch. I took as many notes as I could upon my return, then filed this column. All I really learned this trip is that in the future we will still have buggy hardware!

Yes, it is a long trip, isn't it? ■

John C. Dvorak graduated from the University of California. He is a contributing editor of *PC Magazine* and *MacUser*, considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.

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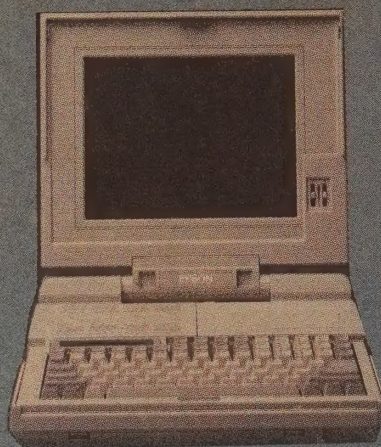
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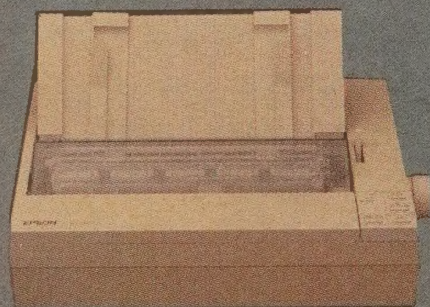
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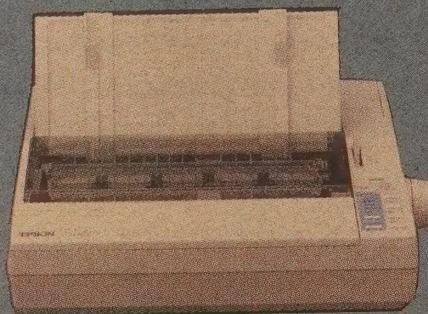
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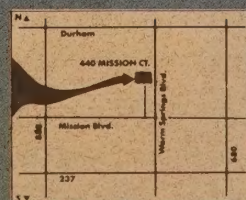
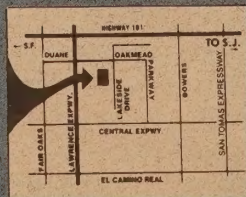
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